PAPERS

OF THE

BRITISH SCHOOL AT ROME

VOL. X

E. L. VAUGHAN
BEQUEST
1954

PAPERS

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PRINTED FOR THE SUBSCRIBERS. SOLD ON THEIR BEHALF BY
MACMILLAN & CO., LIMITED
LONDON
1927

Printed in Great Britain by
Richard Clay & Sons, Limited,
bungay, suffolk.

PREFACE

In this tenth volume of the *Papers of the British School at Rome*, it has been thought desirable to adopt a larger page in order to do justice to the details of architectural drawings.

It may further be observed that two of the papers embody the results of collaboration between archaeological and architectural students of the School.

Bernard Ashmole,
Director.

October, 1927.

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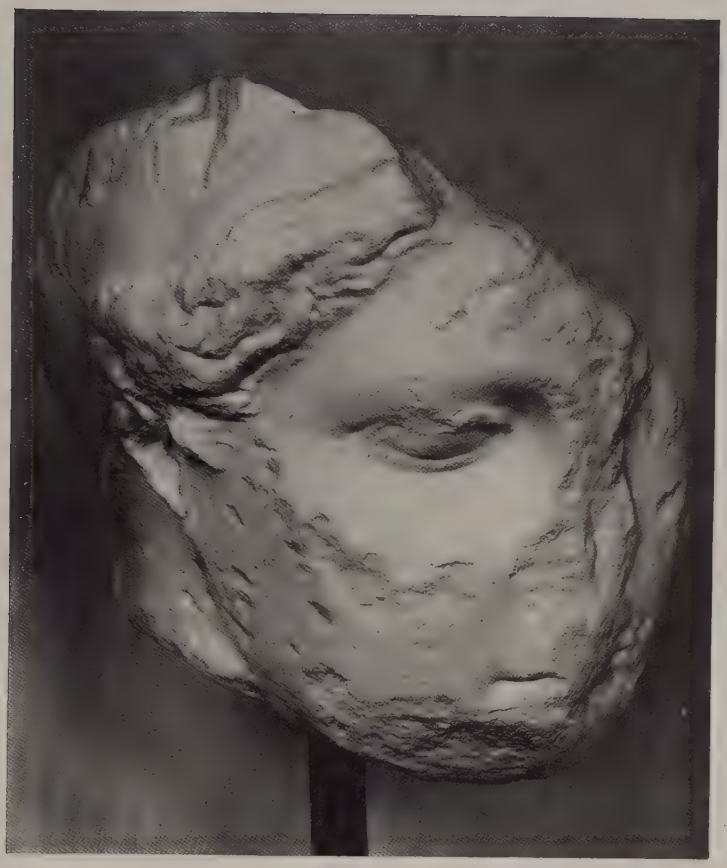

FIG. 1

FIG. 2

FIG. 3

FRAGMENT OF HEAD IN THE ACROPOLIS MUSEUM AT ATHENS
(FIG. 1 FROM A CAST; FIGS. 2 AND 3 FROM THE ORIGINAL)

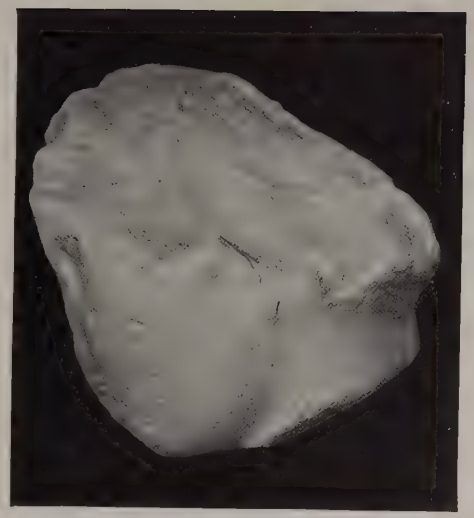

FIG. 4

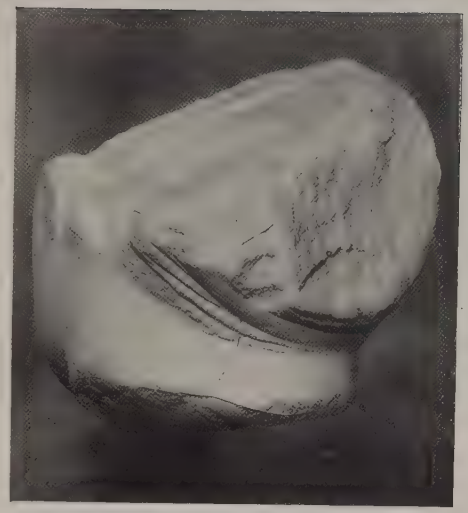

FIG. 5

FIG. 6

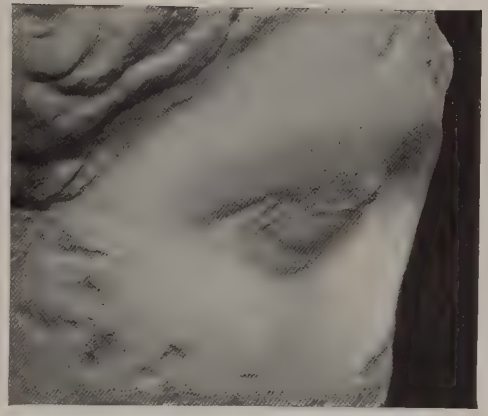

FIG. 7

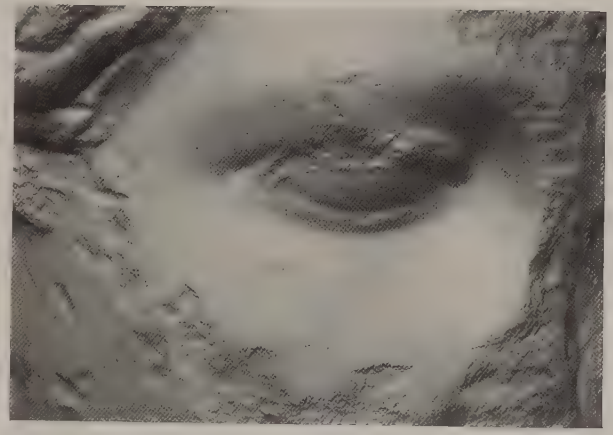

FIG. 8

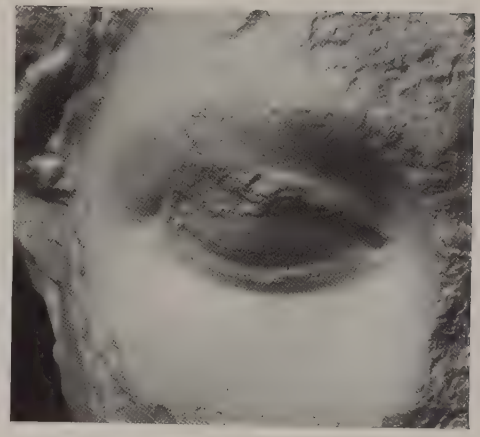

FIG. 9

FRAGMENT OF HEAD IN THE ACROPOLIS MUSEUM AT ATHENS
(FROM A CAST)

PLATE II

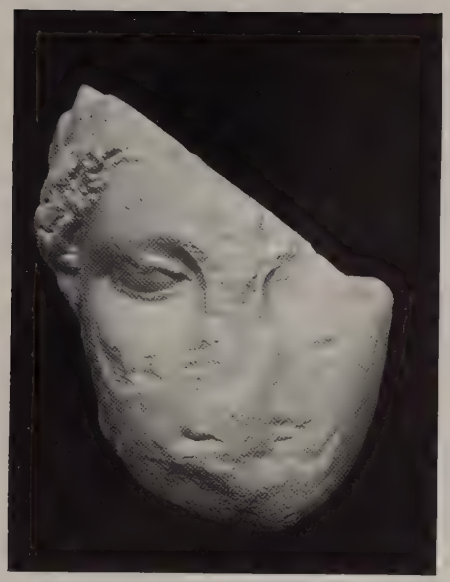

FIG. 10

FIG. 11

FIG. 12

FIG. 13

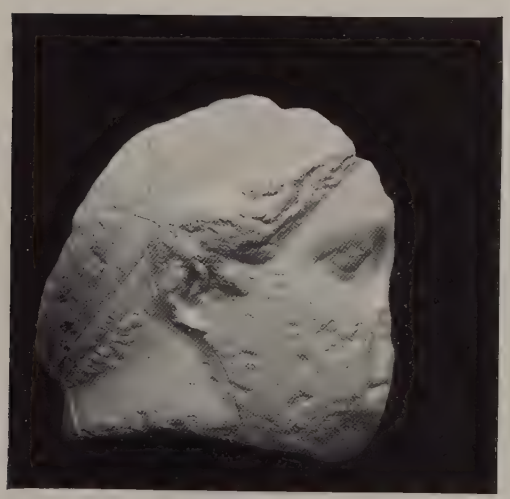

FIG. 14

FIG. 15

THE ACROPOLIS HEAD (FIGS. 10, 12, 14) COMPARED WITH THAT FROM THE PALATINE (FIGS. 11, 13, 15: RESTORATIONS OMITTED)
(FROM CASTS)

HYGIEIA ON ACROPOLIS AND PALATINE.

(Plates I–V)

By BERNARD ASHMOLE.

I. The Head on the Acropolis.

There is in the Acropolis Museum at Athens a battered and mutilated fragment of the head of a woman, which has twice been published as part of the Parthenon sculptures [1] (Pls. I. and II.). The remains of its fine surface and dark brown patina, resembling those which one finds in the Helios of the East pediment and other of the pediment figures, have, together with its high quality, allowed its claim to belong to that building to pass unquestioned. But it has no connection with the Parthenon, for its scale is too large for the metopes and too small for the pediments.[2] It must, then, be judged and assigned to a school by other means.

One notices at first glance a resemblance to the attractive head from the Palatine (Figs. 11, 13, 15 and 17–19),[3] published by L. Curtius,[4] who collected much relevant material. The Palatine head has passed from time to time as an original, but Curtius' judgment, quoted below in full,[5] is sound enough. Its left side (Fig. 19), especially, forbids one to put it any higher than a rather hard copy, perhaps of the time of Augustus or a little later.

There are two questions to ask about the relationship between the Acropolis fragment and this head from the Palatine. First, are they of the same type? And, second, is the Acropolis fragment the original of that type? In Figs. 1–15 and 17–19, and on pages 2, 3 and 4, will be found all the material (short of an actual set of casts) for forming a judgment on the first question. The correspondence of detail and of measurements is convincing; and in my own mind no doubt remains that the Acropolis head is of the Palatine type. The complete statue is given by the work known as the Hope Hygieia. Below is a summary of what we know of it and its relatives.

---

[1] B.M. *Parthenon*, Pl. 14A, No. 19. Casson, *Acropolis Catalogue*, vol. ii. p. 69, No. 1223. Unrestored. Pentelic marble.

[2] For instance, the measurements of the neck of the so-called Pandrosos of the West pediment (I suppose, judging by the 'Carrey' drawings and the actual remains, the smallest of the women in the pediments) are ·152 m. side to side; ·155 m. back to front: as against the ·13 m.; ·135 m. of the Acropolis fragment. Two centimetres of difference. The scale of heads like the Laborde and the West pediment Athena is larger still. The necks of the figures in the metopes average not more than ·10 m. in diameter.

It will be seen in the course of the argument that the Acropolis fragment differs also in style from the Parthenon sculptures.

[3] Museo delle Terme, Helbig[3], 1341.

[4] *Jahrbuch*, XIX. (1904), p. 55 ff. (= Curtius).

[5] Curtius, p. 66. "Aber er ist eine Kopie, wenn auch eine der vorzüglichsten, die wir besitzen. Zu einem Original fehlt noch ein gewisser Hauch, die Leichtigkeit der ersten Hand, der Reiz des eben erst Fertigen, eine gewisse geistreiche Unmittelbarkeit. Das Original muss in der Weichheit der Ubergänge, in dem Duft der schwellenden Einzelform noch viel mehr gegeben haben. . . . Hier ist alles überlegt, gar zu deutlich fertig. Die Mundwinkel sind gebohrt, die Unterlider setzen etwas hart ab. Bei einem Werk, das so abgetönt ist, spürt man das kleinste Zuviel; vielleicht kommt eine gewisse Strenge stärker zum Ausdruck, als sie dem Original eigen war."

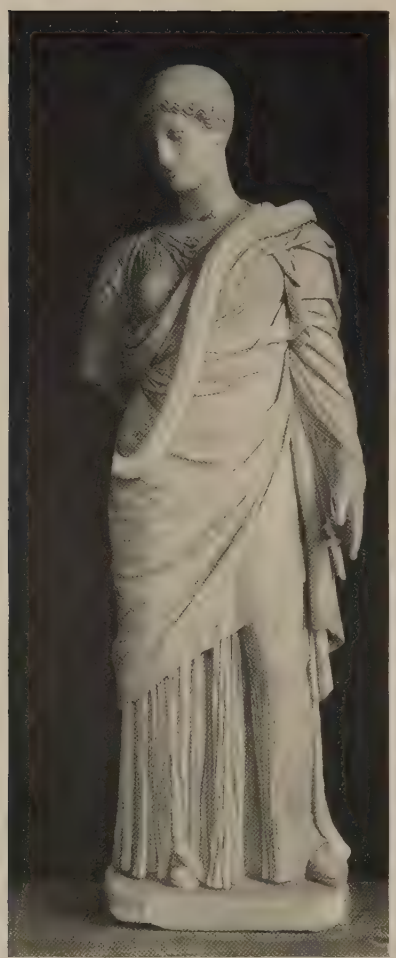

Fig. 16. The Hope Statue of Hygieia, from Ostia (Melchet, Hampshire).
(*Restored r. forearm omitted.*)

Copies of Full Size.[1]

(*a*) *Statue complete*. The Hope Hygieia. Found at Ostia; once in the Hope Collection at Deepdene in Surrey (Michaelis, *Ancient Marbles*, p. 282, No. 7), now in the collection of Sir Alfred Mond at Melchet in Hampshire (*Sale Catalogue*, *Christie, Manson and Woods*, July 1917, p. 41, No. 252 (plate)). Figs. 16 and 23–25.

Height (excl. plinth) 2·10 m. For other measurements see the table below.

Pentelic marble.

Restored: the glass eyes; most of the nose; some small patches where the head has been reset on the neck; right arm from above the elbow with phiale; left hand with the folds of the drapery round the outside of the wrist; several patches on the left arm, and the end of the himation behind it; patches also on the edge of the chiton to the left of the left foot. The front part of the snake to the point where it first touches the body is restored; then comes an antique piece about a foot long patched in front; above this is another restored section to a point just below the breasts: the remainder of the snake is antique. The head belongs to the body and is rightly set, since there is a touching surface at the back of the neck.

Copy, probably early Antonine; the most complete in this size.

(*b*) *Head*. Found in the so-called stadium on the Palatine; now in the Terme Museum (Helbig[3], 1341). Figs. 17–19.

For measurements see the table below. Parian marble.

Restored (in plaster): the whole of the neck with the lower part of the right cheek (see Figs. 11–15 and 17–19). Back of head missing.

Copy, late Augustan (?).

(*c*) *Head*. Now at Vienna (von Sacken, *Antike Sculpturen in Wien*, p. 30, Pl. XII.; Curtius, p. 56, Figs. 3 and 4; Reinach, *Monuments nouveaux de l'art antique*, ii. p. 265 f., Fig. 424, who persists in the old identification as Sappho,[2] and suggests Cresilas as the sculptor of the original). Figs. 20–22.

For measurements see table below.

Parian or other island marble, of coarse grain.

Restored: the bust. Parts of the face have been worked over, especially on the left; so have the nose and the front of the right cheek. The marking of pupil and iris is modern.

Copy, apparently rather earlier than (*a*), Hadrianic (?), but rougher, and its character destroyed by the modern smoothing-down.

[1] In the following lists details of measurement and marble are given where they supplement published descriptions. The head quoted in *Art and Archaeology*, XXII. No. 4 (Oct. 1926), p. 147, as a replica of the type, turns out not to be; so Dr. Shear has kindly informed me: (see now his article in *A.J.A.* XXX. (1926), p. 462, pl. VI.). As this goes to press Dr. Curtius has been good enough to send me photographs of (*q*), and of another replica in Petrograd brought to his notice by Dr. Waldhauer. From these it seems that (*q*) may be of full size. The other looks about as large as (*r*), and of like proportions, but rougher, and much simplified.

[2] See, however, *ib.*, p. 156.

(*d*) *Head.* Cloister of St. John Lateran. Figs. 26, 27. Pentelic marble. Unrestored but much weathered and rubbed (water-worn ?). In spite of this it makes a favourable impression, and may well have been a copy of about the same quality as (*b*).

(*e*) *Double herm.* Villa Albani (Curtius, p. 66).

(*f*) *Fragment, upper part of head.* Found at Athens; now in the British Museum (*Catalogue of Sculpture*, vol. iii. p. 123, No. 1797). Figs. 28–30.

For measurements see table below.

Pentelic marble; polished yellow patina. Unrestored.

Copy, end of first century A.D. (?). Perhaps belonging to the torso (*g*): there is the same reckless use of the drill in both.

(*f bis*) *Torso.* Found near the Zappeion at Athens; now in the magazine of the National Museum, Athens (Arndt-Amelung, *Einzelaufnahmen*, No. 717; Curtius, p. 71, Fig. 8).

Copy, end of first century A.D. (?). Perhaps belonging to (*f*), but, if I remember rightly, less highly polished.

(*g*) *Torso.* Messina (*Monumenti Antichi*, XXIV. (1916), p. 207, Fig. 52).

(*h*) *Torso.* Vatican Garden (Arndt-Amelung, *Einzelaufnahmen*, No. 782). Snake on ground by right side.

Statuette Copies.

(*i*) *Complete statuette.* Found at Epidaurus; now in National Museum, Athens (Stais, *Marbres et Bronzes*, p. 97, No. 1810; Curtius, p. 65, Fig. 7. A new fragment, the lower part of the drapery and the feet, has been added since Curtius' photograph was taken). Tail of snake over left shoulder, and its head under right arm. Box in left hand: on the lid of it a *gorgoneion*, which may be simply apotropaeic: but probably hints too at a connection with Athena, appropriate to the place in which I have below suggested that the original statue was set up. Drapery slightly simplified, as one expects in a small-scale copy; but fresh and pleasing, and perhaps the earliest of the copies.

(*j*) *Complete statuette.* Lansdowne House (Michaelis, *Ancient Marbles*, p. 439, No. 10). Fig. 31.

Height (excl. plinth) ·95 m.; (of plinth) ·05 m.

Pentelic marble.

Unrestored. Head its own, but broken and reset (correctly). Broken across also at mid-thigh. A curl has been added in front of each ear (a common trick of the copyist); the drapery on the left arm shows more of the forearm, and more hair appears behind the ears and at the back of the neck, than in other copies.

(*k*) *Torso.* Piraeus Museum. Box in left hand.

(*l*) *Torso.* Athens, Acropolis Museum magazine. Standing between Nos. 3027 and 2991 when I saw it in 1920; itself unnumbered.

Height ·62 m. Unfinished.

(*m*) *Torso.* Rome, Cortile of the Museo delle Terme (Helbig^3, 1253). No traces of snake.

(*n*) *Torso* (head modern). From Piazza Sciarra, Rome (Curtius, p. 71, Fig. 9).

(*o*) *Torso* (head modern). Rome, Palazzo Barberini (Matz-Duhn, No. 1508; Arndt-Amelung, *Einzelaufnahmen*, No. 2897). Snake on ground by right side.

(*p*) *Torso.* Constantinople (Mendel, *Sculptures grecques, etc.* iii. p. 10, No. 808). Snake over right shoulder. Box in left hand: (Mendel supposes it a phiale summarily rendered; remarking that it is somewhat thick).

(*q*) *Torso.* Petrograd (Reinach, i. p. 293, 1176). Restored: head; r. arm from above, l. from below elbow; front half of snake; other patches. As a copy, like (*a*), but less careful and rather earlier. See note 1, p. 2.

(*r*) *Fragment, lower part of body.* Elgin Collection: therefore probably from Athens (*B.M. Cat. Sculpt.* iii. p. 202, No. 2065). Fig. 32 (right).

Pentelic marble. Patched with plaster on l. thigh.

About life size. Careless but lively work. In spite of the statement in the British Museum Catalogue, the mark on the body can hardly be that of anything but the snake. To this fragment may belong *B.M. Cat. Sculpt.* iii. p. 75, No. 1698. Fig. 32 (left). If so, the presence of the snake is proved.

Derivatives.

(1) *Head.* From the Asklepieion, south slope of the Acropolis (Kavvadias, Γλυπτὰ τ. Ἐθν. Μουσ., p. 162, No. 186); now in National Museum, Athens (Arndt-Amelung, *Einzelaufnahmen*, No. 647–9; Curtius, p. 57, Fig. 5).

Reversed and otherwise modified; but Hygieia still, from the provenience.

(2) *Torso*, statuette. Formerly in Rome; now in the collection of Sir Alfred Mond, Melchet (Arndt-Amelung, *Einzelaufnahmen*, No. 817; Curtius, p. 76, Fig. 11).

MEASUREMENTS OF THE LARGE REPLICAS.[1]

	Acropolis. (Acropolis)	Terme. (Palatine) (*b*)	Brit. Mus. (Athens) (*f*)	Vienna (Provenience unknown) (*c*)	Hope. (Ostia) (*a*)
1. Breadth of face immediately below ear.	·15	·149	—	·149	·155
2. Inner corner of right eye to right corner of mouth.	·073	·071	—	·071	·073
3. Inner corner of right eye to left corner of mouth.	·085	·083	—	·083	·086
4. Breadth across nose (from inner eye-corners).	·039	·0335	·0355	·039	·043*
5. Right ear.	·059	·0585	—	·06	·059
6. Mouth.	·043	·041/2	—	·0475	·046/7
7. Right eye:					
(*a*) Length (excl. lids).	·0368	·0362	·032	·037	·038
(*b*) Length (excl. lids; incl. curve of eyeball).	·04	·04	—	—	—
(*c*) (Height excl. lids).	·013	·013	·012	·011	·015*

* Edges of eyes perhaps recut.

[1] Notes on the copies. A written comparison of detail is not necessary, since the photographs speak for themselves. In the measurements we can afford to disregard variations up to a millimetre or so. The Acropolis head does not differ more from the undoubted replicas than do the undoubted replicas from one another. But the general correspondence of measurements between all the pieces cited is undeniable. How discrepancies both of measurement and detail arise may be understood when one considers the difference between ancient and modern methods of copying, as well as that between the purposes of copies then and now. The modern copyist works mechanically, normally on behalf of the sculptor of the original (usually a plaster cast from clay) which is being copied; and takes as many 'points' as he considers necessary, often hundreds on a head only, in order to ensure that the copy is a mechanically accurate one. The ancient copyist worked for a patron who was not likely to check measurements, and who sometimes did not even know the original himself. The copyist making a full-size copy seems to have had a cast, perhaps even the cast of a copy only, in coarse gypsum: sometimes, too, only of part of the statue, *e.g.* a mask when he was copying a head, since there is no evidence for piece-moulds; and for the body perhaps a model of smaller scale. He was, in short, given greater freedom, and, his mechanical appliances being less perfect, he naturally trusted more to his eye and took far fewer points than does the modern. The result, which can be seen in comparing and measuring any series of copies from a known original, is that the character and taste of the copyist appear in the copy. Thus an artistically good copy, inaccurate in measurements, may give more of the spirit of the original than a more mechanically accurate one by a third-rate copyist. This does not alter the fact that if perfect mechanical accuracy could be obtained, the copy could only differ from the original in texture, and would therefore probably be in most cases indistinguishable from it. Apart from alteration of style or deliberate addition of detail, one constantly finds discrepancies in detail or measurements where the copyist has nodded. He misunderstood the original or copied a copy which misunderstood it: his cast was incomplete: he cut too far, or did not trouble to cut far enough: he made the measurements of separate parts correct but their relative position wrong—all these accidents may cause an inaccurate reproduction of the original. The 'lock for lock' theory, that is, the dogma that the lay-out of comparatively unimportant parts such as the hair must correspond before we can say that any one head is a replica of another, has to be intelligently applied if it is not to lead one to deny that any ancient work has a replica. In fact one is never absolved from using one's judgment.

To take an example from the present series of copies: in the Hope Hygieia (*a*), an admitted replica of the type, we find on the right, between the forehead fringe and the projecting wave of hair across the middle of the head, an additional line on the hair-band which does not occur in either (*b*), (*c*), or (*f*). Nor does it occur in the Acropolis fragment.

The copyist using a cast not made by piece-mould is not quite certain how his component parts join, and his cast does not reproduce undercut hollows. Is it too fanciful to suggest that these are the reasons why the cross-tendon which one sees in the ear of the Acropolis head is not reproduced in either the Vienna or Palatine heads, and why there is a muddled part behind the ear of the last-named, where a mass which is neither hair nor hair-band is allowed to interrupt without reason a line representing a fold or edge of the hair-band running up towards the ear from below?

Illuminating is the different stylisation of the hair in every copy; and indeed, on the whole, any differences there may be are differences not of design but of execution.

(*b*) and (*c*) are of Greek island marble and were therefore perhaps not made in Athens.

The original position of the snake seems to have been roughly that of (*a*), the variations being due to a desire to economise marble, and the total omission in the reliefs (Fig. 33 and note 2, p. 6) to mere neglect. Was this attribute, and the cord over the right shoulder, of bronze in the original?

The box in the left hand seems to have been there in the original, since it is given in the only two copies where the hand is preserved, (*i*) and (*k*); cf. also (*p*). It is curious, but I think no more than a coincidence, that the statuette copies (*i*) and (*j*) both omit the cord over the right shoulder and emphasise the folds beneath and outside the right breast: in (*j*) one of them is so stiff as to resemble a cord.

There is always present the possibility that in the Acropolis fragment we have a piece of an original closely related to another now lost, and that some of the copies derive from one, some from the other. But taking into account all the evidence, my own view that the Acropolis fragment is the original of all the copies has, I think, greater probability.

The second question (now amplified), 'Is the Acropolis fragment a fragment of the original statue to which the Hope Hygieia and the other replicas go back?' is less easy to answer categorically. The external evidence is slender, but strong enough so far as it goes; for our fragment was found, if we may trust the imperfect records, actually on the Acropolis.[1] The fragment (*r*), the full-sized torso (*f bis*) and the fragmentary head (*f*) were also found at Athens. The date of the last two is important. From the execution it can hardly be earlier than the end of the first century A.D. The finding in the eastern Mediterranean of a Roman copy of a Greek work probably means that the original remained in the eastern Mediterranean until at least the time when that copy was made.[2] Thus the original of the Hygieia was in the eastern Mediterranean until the end of the first century. And probably in Athens; for the small torso (*l*) was, so far as one can tell from the records, again found on the Acropolis itself.[3] Its unfinished condition is significant; for one can only imagine that it was actually being copied from the original which stood there when something happened, we do not know what, to put a stop to the work. And the original then being copied was, I submit, that statue of which our fragment once formed a part.

The internal evidence for believing the Acropolis head a fragment of the original is yet stronger than the external, in my own judgment: though there is room for a difference of opinion here, according to the individual view of what a Greek original should be like. The only way of showing that it is not merely an addition to our series of copies is to put it among the copies (Figs. 10–15 and 17–30), where it stands out, for all its mutilation, fresh, soft, and incomparably delicate in its transitions. One sees how the copyist plotted out the Palatine head, executed it with all the precision he could, and produced a mathematical exercise, hard, and almost cold.[4] Yet the Palatine head is, except the Epidaurus statuette, the best of the series. The Hope, Vienna and British Museum pieces are indeed from the same original, since their measurements and superficial design agree

[1] I can find no part of the body of the statue among the marbles from the Acropolis in the British Museum, and have not been able to search for fragments of it in Athens itself.

[2] Cf. Lippold, *Umbildungen*, p. 45. The finding in Greek lands of even a full-sized copy in the same city as the original is not uncommon: cf. note 2, p. 6 below, where it is clear that the original of the Asclepius mentioned was in Athens, by its appearance on Athenian coins. The fragment in the British Museum (*Cat. Sculpt.* ii. p. 208, No. 1314), which seems to be a copy of the Cnidian Aphrodite of Praxiteles, comes from the sanctuary of Demeter at Cnidus.

[3] It is improbable that a copy in one city in Greece which had replaced an original carried off to Rome would be cast in order that it might be copied in another Greek city. Nor is it likely that a cast of the original then in Rome would be sent back to the bereaved city or to any other part of Greece in order that other copies might be made for ordinary trade purposes.

From this it seems to follow that when one finds an unfinished copy in Greece the original was in Greek lands at the time of the making of the copy.

Can one further deduce that when an unfinished copy is found in Athens the original was in Athens? Not necessarily, since Athens was probably a centre for the copying of works of art from almost anywhere in the Greek world. But the present case offers other premises, since this unfinished statuette copy seems to have been found on the Acropolis. This surely indicates that the original was on the Acropolis; one can hardly imagine any other reason for a copyist working there. To-day one often sees small copies, but naturally never full-sized ones, being made from large statues in museums.

It is, however, possible that copies of copies were made in Athens, as they well may have been in Rome. One might suppose that sometimes in Athens the original had been removed and replaced by a copy; and that that copy may have itself been copied, in the absence of the original.

[4] See Figs. 1–15 and 17–19. In the Acropolis head the folds and edges of the hair-band are rendered with greater decision, and the hair under it is well suggested, as by one who was accustomed to seeing it worn so. Throughout, one is reminded strongly of the qualities postulated by Curtius for the lost original (see note 5, p. 1). In order to realise what the copy has lost while preserving the main measurements and design, one has only to compare the rendering of the eye, lid, brow, and surroundings. No trace in the Acropolis fragment of the drill-holes which disfigure, however slightly, the ends of the mouth in the Palatine head.

sufficiently well with each other and with the Palatine head. But what they tell us of the original sculptor's touch is negligible, and even misleading.

To write more would be useless, since if the Acropolis head is not the original, no apologetic will make it so. It carries its own patent, and appreciation of it as a work of art can alone bring conviction. In the remainder of this article I therefore take as hypothesis that it is not only of the Hope type, but is actually the original [1] from which the Hope statue and the whole series derive.

II. The Dedication.

The provenience of the fragment (and we must remember that the provenience of many of the pieces in the Acropolis Museum and its magazine is not quite certain) suggests that the original statue was first dedicated on the Acropolis at Athens, and the meagre external evidence confirms the suggestion. When we realise that it stood on the Acropolis itself and not in the great shrine of Asclepius about the cave on the south slope, we hit on the explanation of another phenomenon: the rare occurrence of this Hope Hygieia type on votive reliefs. Votive offerings normally were made where there was ample room for them, in the great south slope shrine, undoubtedly the most popular one. There is, however, a relief in the Fitzwilliam Museum at Cambridge (Fig. 33) where Hygieia of the Hope type accompanies an Athenian fifth-century type of Asclepius.[2] The marble is Pentelic and the relief itself comes from Athens.

We have, then, traced the statue down to Athens and to the Acropolis. We can, I think, go further still. Pausanias (and for our present purpose his date, as late as the second century A.D., is of importance) gives the following account of a little precinct near the south-east corner of the Propylaea (Fig. 34): [3]—'Τοῦ δὲ Διιτρέφους πλησίον, τὰς γὰρ εἰκόνας τὰς ἀφανεστέρας γράφειν οὐκ ἐθέλω, θεῶν ἀγάλματά ἐστιν Ὑγιείας τε, ἣν Ἀσκληπιοῦ παῖδα εἶναι λέγουσι, καὶ Ἀθηνᾶς ἐπίκλησιν καὶ ταύτης Ὑγιείας.'

'Near the statue of Diitrephes (for I do not wish to mention the obscurer statues) are images of gods—one of Hygieia, who is said to be a daughter of Asclepius, and one of Athena, who is also surnamed Hygieia.'

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[1] I can find no representation of this statue either on the New Style tetradrachms or on the Imperial bronze coins of Athens. This negative evidence does not weaken the claim here put forward, since only a small proportion of the statues in Athens appear on coins. The evidence of copies, derivative (No. (1), p. 3), and reliefs (cf. note 2) all points to an original in Athens even if not on the Acropolis.

One serious objection to the Acropolis theory is that the fragment, though battered, does not show such signs of weathering as, for example, the exposed parts of the Parthenon pediments. Seven hundred years or so is the minimum period, on our hypothesis of where it stood, during which this head must have been exposed to the weather; and there was probably no shelter of any kind. It is true, however, that many of the figures on the Parthenon have been exposed (perhaps less to rain but more to wind) for over two thousand years. The resistant quality of polished Pentelic marble is high. The polish plays an important part, and deterioration takes place more quickly when the surface is gone.

[2] Michaelis, *Ancient Marbles*, p. 249, No. 16. Another relief at Athens reproduces the same Asclepius with what may be the same Hygieia (Walter, *Beschreibung d. Reliefs im kleinen Akropolismuseum*, p. 52, no. 88). With torso (*f bis*), too, was found a torso of the same Asclepius (Arndt-Amelung, *Einzelaufnahmen*, No. 717/8). This juxtaposition can hardly be more than a coincidence due to arbitrary choice by copyists.

[3] Pausanias, i. 23. 4. The explanation of Hygieia's parentage, as well as the avowed intention of a moment before to mention only the notable statues, puts out of court any supposition that Pausanias is here speaking of the statue, probably an empress deified, which once stood on the still surviving base inscribed Σεβαστη Υγεια (*sic*). Such honorary statues of late date and great commonness would hardly have interested the antiquarian Pausanias.

Plutarch, *Vit. x Orat.* p. 839*d*, also mentions the statue. The following paragraphs are drawn almost verbatim from Frazer's *Pausanias*, vol. ii. p. 277 ff., and Weller's *Athens and its Monuments*, p. 252 ff., which also furnishes, by kind permission of the author and of the Macmillan Company, the plan of the precinct of Hygieia (Fig. 34).

The base of the Athena-Hygieia (Fig. 34, c) stands against the south-east corner column of the Propylaea. The statue itself, a work of the sculptor Pyrrhus, cannot [1] have been of the Hope Hygieia type and so that to which our fragment belonged: first, because the date of the dedication is too early for the style of our fragment; second, because the marks of attachment on the base show that the free left foot was well behind the right, not nearly level as in the Hope Hygieia type.

Now Plutarch, in his life of Pericles, tells us that this statue of Athena-Hygieia was set up beside a previously existing altar of the goddess.[2] Less than four yards to the east of the pedestal of Pyrrhus' statue are still to be seen the marble foundations of an altar (Fig. 34, D), consisting of a square basement or step; and, nearer to the eastern than the western side of the basement, a portion of the altar itself, no doubt the one mentioned by Plutarch, is still preserved. From the position of this altar proper, nearer the eastern than the western side of the basement, it appears that the priest stood on the western side of it, facing east. It shows, in short, that the worshipped statue of the goddess, if there was one, must have been situated to the east of the altar, and cannot have been the statue made by Pyrrhus, otherwise the priest in sacrificing would have had his back to the goddess. This altar was an exceedingly early foundation, and at first probably had no statue; for Aristides, like Plutarch, says that 'the most ancient of the Athenians founded an altar to Health-Athena.'[3] And yet, although there was on this supposition no statue to the east of that altar in the time of Pericles, Pyrrhus'

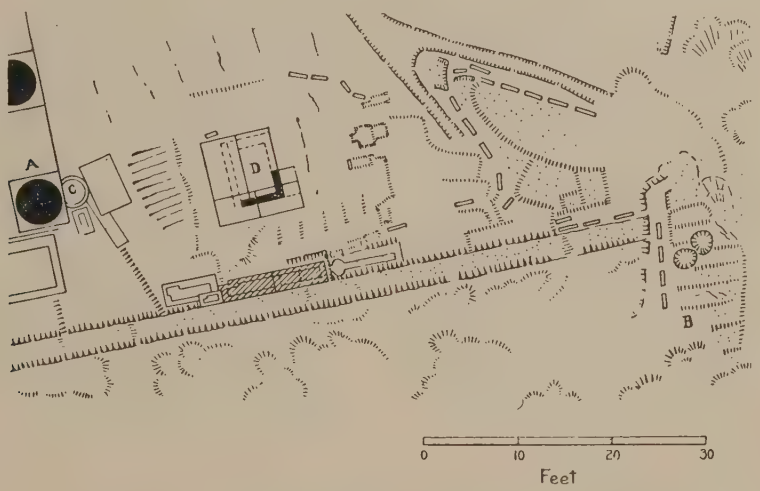

Fig. 34. Precinct of Hygieia on the Acropolis at Athens.

[1] Whether we identify it with the Farnese type or not: (Naples, *Guida Ruesch*, p. 41, no. 133). It was of bronze (Plutarch, *l.c. infra*).

[2] *Pericles*, 13.

[3] Aristides, *Or.* ii. (vol. i. p. 22, ed. Dindorf). One might suggest that the dedication of a statue of Health independent both of Asclepius and of Athena came some years later than the introduction of the cult of Asclepius and Health to the southern slope from Epidaurus in 420 B.C. If so, it was a characteristic act of early fourth-century Athens, which set up a group of Wealth in the arms of Peace. Thinly-veiled materialistic gods, these. It is suggested below, on other grounds, that the Hope Hygieia type dates from the first quarter of the fourth century.

Athena-Hygieia was naturally placed to the west rather than to the east, because it marked a particular spot where the slave fell from the roof of the Propylaea.

I suggest that on the east of the altar there stood until at least the time of Pausanias, who thought it worthy of mention, stood, not until it was carried off, but until it was broken and thrown down, the statue of Hygieia of which our fragment is a survival.

III. The Sculptor.

The most valuable criterion of date, as commonly when one deals with an original, is the style. Probably by an Athenian artist, since dedicated in Athens; later than the Parthenon, as a comparison with any of the heads from that building will show; with a slight touch of sentiment which seems foreign to them: what we have before us is a head with something of the plumpness of the Erechtheum Caryatids: with a reminiscence, shall we say, of them and of the Acropolis Procne. Or, one might argue, not a reminiscence, but a parallel. In either case the date suggested by the analogy is late in the fifth century at earliest. On the other side, as a *terminus ante quem* in Athens, we have the work of Praxiteles. Study the conformation of the eye and its surrounding parts (Figs. 7–9) and you see nothing of the Praxitelean shape, like a bay-leaf slightly twisted, which was certainly in full fashion by 350, but a straight almond-shaped eye, outer corner level with inner; deeply set, but perhaps not so deeply as the Praxitelean, and less overhung at its outer corner; finished with just as exquisite a care; the eyeball prominent; the brow soft but not fleshy. This is what one expects during the transition from fifth to fourth century, and finds (so far as one can judge when there are only copies to go by) in some of the work by Cephisodotus. The present head does indeed show affinity with him, and although I do not think it his, we shall not be far wrong in assigning it to his period, the first quarter of the fourth century B.C.

Now, turning to the complete statue and looking at the two figures (Figs. 37, 38), the one the Hope Hygieia,[1] the other the tolerable Munich copy of the Eirene of Cephisodotus (the original of which was made, we suppose, at the end of the first quarter of the fourth century), we see that not only the dress itself but the sculptural motives of the dress are different. The one wears a heavy, smooth, Doric peplos with himation hung behind, the other a lighter, crinkled Ionic chiton with himation wrapped over. But a closer examination discovers similarities of an essential kind. If one thinks away the difference of material and compares closely the actual scheme of drapery about the lower part of the legs (Fig. 35),[2] one finds that it amounts almost to a simple reversal. A group of three or four narrow vertical folds on the outside of the supporting leg; two (splitting into three) over the supporting leg itself, the toe of which projects; a heavy mass between the legs composed in both of a broad fold and a narrow one slightly behind it; a heavy fold falling from the knee of the free leg, tapering, and then expanding again to fall just inside the foot, to sweep up over it and to cling, a subsidiary fold or two between, to the outer side of the calf. Finally, this outline of the leg framed at the upper part of the thigh by the himation, below this by the chiton, in both statues. This kind of drapery arrangement, an elaboration of the simple, explanatory scheme of the second half of the fifth century (contours of free leg shown by clinging drapery—supporting leg covered by columnar folds), is common in the time of the youth of Praxiteles,[3] but there is no

[1] Remembering that it is a copy, and its date as a copy.

[2] For convenience I use here an illustration of the New York copy of Eirene. The comparison, of course, holds good with the Munich copy (Fig. 37).

[3] Compare, for example, the Dresden Artemis and the type of the bronze Athena of the Archaeological Museum at Florence.

closer parallel to the Hope Hygieia than the Eirene of Cephisodotus. With this scheme of drapery is intimately connected the ponderation of the figures, and this again, except for the arms, is virtually a reversal, as well in the body as in the head. Passing from the pose to the general conception we may remark a characteristic of this period which is apparent in both.[1] In the Eirene, as in the Hygieia, one has a feeling of the posing of the figure and the draping of material upon it. Again I do not mean to assert that the original of the Hygieia was by Cephisodotus; but considering the similarity of general conception and even of detail, we can postulate for it and the Eirene an almost exact contemporaneity.

Fig. 35. The Lower Part of a Statue of Eirene (New York) compared with that of the Hope Hygieia.

It is not in the least surprising, after what we have just seen, to find, on the relief of Kore, Triptolemus and Demeter (Fig. 36) found at Eleusis, which seems to reproduce a group in the round, a figure very like the Hope Hygieia associated with a figure very like the Eirene. Putting the four relevant types together (Figs. 36*a*, *b*; 37, 38), and speaking generally, we may remark, in addition to the careful study of pose and draping of material, a certain amount of experiment, characteristic of the late fifth and early fourth century, with the turning, inclining and bending forward of the heads.

A more particular comparison brings out between Kore and Hygieia (Figs. 36 *a*, 38) a closely similar feeling for the himation wrapped fairly tightly over the chiton, and for the forms of the body through the drapery; similarity in the detail of the drapery itself, the chiton bunched under the left arm and the cord holding the chiton on the shoulder, which were fashions of these years perhaps. The poise of the head, the pose of body, shoulders, legs and feet are simply reversed, except that the left shoulder is more raised in Hygieia than in Kore. Only the arms differ. This similarity has been emphasised by other writers and may, I think, be taken as granted.[2]

[1] The art of about a century before this produced a number of renderings, observed directly from nature, of the female body clad in the Doric peplos. The progress of the fifth century saw successive refinements of the motive until, at the end of it and the beginning of the next, the peplos becomes a transparent garment revealing more than it conceals of the form beneath. With Cephisodotus comes a reaction to the earlier ideal, accompanied by a certain loss of spontaneity. The statue is no longer an inspired representation, largely from memory, of a woman wearing clothes and moving freely and naturally in them, but a careful study of carefully placed drapery on a posed model.

[2] Amelung has already shown, in his article on the Mantinean Basis, how certain of the types created now—for example, this Kore type of the Eleusis relief—were used afterwards in the Praxitelean school.

Between Demeter and Eirene (Figs. 36 *b*, 37) there is no essential difference except the reversal of all the motives and the veiling of the head of Demeter. Again the resemblance in the complete difference in the clothes worn does not conceal the close resemblance in pose. The right arm is raised and supported in each, the left arm lowered and bent at the elbow (but carrying

Fig. 36. (*a*) Kore (*b*) Demeter (Eleusis).

Fig. 37. Eirene (Munich).

Fig. 38. Hygieia (Melchet).

arrangement of drapery round the legs which we have noticed in the comparison between Eirene and Hygieia, with a slight variation in the heavy fold below the knee of the free leg.

Between Kore and Eirene (Figs. 36 *a*, 37) the a weight in one): the left leg the supporting one: the left hip and right knee forward: the right foot placed to the side (a shade more by Kore than by Eirene): the head turned to left, inclined to left, and bent forward in both.

It follows from the comparisons made above

that there is between Demeter and Hygieia (Figs. 36 *b*, 38) a close agreement; and here no reversal. The left arm, however, is raised in one, lowered in the other; but the right lower arm is stretched out in each. The pose otherwise is virtually the same: the arrangement of the drapery round the legs the same, and, as a sculptural motive, seen in spite of the difference of dress, the masking of the left breast in order to emphasise the right.

The inference is that Hygieia, Eirene, Kore and Demeter were by contemporary and closely related artists; the greater probability that the group reproduced on the Eleusis relief was made by the sculptor of the original of the Hygieia; the less, that it was made by the sculptor of the original of the Eirene, Cephisodotus; unless indeed those two sculptors be identical.[1]

I wish to thank Dr. Amelung for drawing my attention to the head in the Lateran cloister (*d*), and the German Archaeological Institute for their photograph of it, which I reproduce; Mr. M. A. Sisson and Dr. G. A. Snijder for measurements; Dr. F. Eichler for measurements and other details; Comm. R. Paribeni and Miss Winifred Lamb for permission to measure the head in the Terme Museum and to photograph the relief at Cambridge; Mr. A. M. Woodward for a cast; the staff of the British Museum Greek Antiquities Department and Coin Department for unfailing kindness; Sir Alfred Mond and Mr. Gordon Selfridge for allowing me to photograph and study at Melchet and Lansdowne House. I find it hard to express to my wife, to Mr. John Marshall and to Professor J. D. Beazley my gratitude for their constant help.

[1] Of that we shall be better able to judge when an original by Cephisodotus is discovered.

THE RELATION OF THE PRAETORIAN CAMP TO AURELIAN'S WALL OF ROME.

(Plates VI–VIII)

By I. A. RICHMOND.

This paper is the result of testing the following proposition, formed during a study of the City Wall of Rome.[1] It was required to prove that the Praetorian Camp had remained unchanged after Seianus built it in A.D. 23 until Aurelian made an addition to its walls when he attached them to his City Wall in A.D. 271. Thus might have been gained with ease an undoubted example of Aurelianic brick-facing for use in identifying work of the same period in the much-altered City Wall. But the problem proved complex. Eventually Aurelian's work appeared in an unexpected guise, but not before three previous sets of alterations in the defences of the fortress had been recognised. And these seem worth description, not only as aids to understanding Aurelian's work, nor even because they also link us with Roman accounts of the Praetorians, but because they give elevational views of a Roman fortress such as have rarely survived in full detail to our own times. What would British archaeologists not give for such a view of Hadrian's Wall?

(I) Changes in the Castra Praetoria.

Period 1.—The camp of Seianus, A.D. 23. Cassius Dio has pointed out[2] that the Castra Praetoria were designed to promote discipline and efficiency among the Imperial Guards, by quartering them all in one fortress, with the Urban Cohorts.[3] The area enclosed by this great barrack was 16·72 hectares (41·20 acres), enough to contain about six thousand men according to the standards of the time (cf. the 25 hectare fortresses at Bonn and Neuss),[4] and to leave room for appropriate central buildings. But barracks of two storeys were found[5] within the area in 1873, and at the very lowest estimate the fortress must have contained more than the number suggested above, for it housed nine

[1] I wish to thank Madame Rivoira and the Clarendon Press for lending blocks from Rivoira, *Roman Architecture*, here Figs. 2, 3 and 4; the British and American Archaeological Society of Rome for allowing me to copy Parker's valuable photographs, here Figs. 1, 6, 7 and 8; Generale Di Giorgio for granting permission to study remains inside the fortress, and Tenente Bitocco for much kindness. Mr. M. A. Sisson's help has been invaluable and untiring. Dr. Ashby also provided me with much information about literary and other sources, for which I am deeply grateful.

[2] Cass. Dio, lvii. 19: cf. Suet. *Tib.* 37.

[3] This is pointed out by Jordan, *Roman Topography*, I.[3] p. 386, n. 32.

[4] Bonn: Klein, *Korr. blatt des W.D. Zeitschrift*, viii. 88. Novaesium: *Bonner Jahrbücher*, 1904: Koepp, *Römer in Deutschland*, Pl. X.

[5] *Bull. Com.* IV. (1876), p. 178: cf. *F.U.R.* Sheet XI. The upper storey may be either for arms or men. The question is complicated by the uncertainty of the strength of the garrison. No trace now remains of the painted wall-plaster and star-spangled ceiling which Parker saw (cf. Fig. 1).

FIG. 26

FIG. 27

HEAD IN THE CLOISTER OF ST. JOHN LATERAN

FIG. 28

FIG. 29

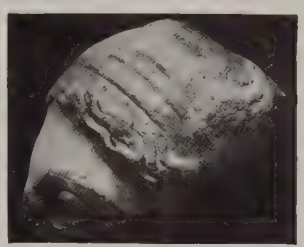

FIG. 30

FRAGMENT OF HEAD IN THE BRITISH MUSEUM (FROM ATHENS)

FIG. 31
LANSDOWNE HOUSE

FIG. 32
BRITISH MUSEUM
(FROM ATHENS)

FIG. 33
FITZWILLIAM MUSEUM, CAMBRIDGE
(FROM ATHENS)

FIG. 17

FIG. 18

FIG 19

HEAD IN THE TERME MUSEUM (FROM THE PALATINE)

FIG. 20

FIG. 21

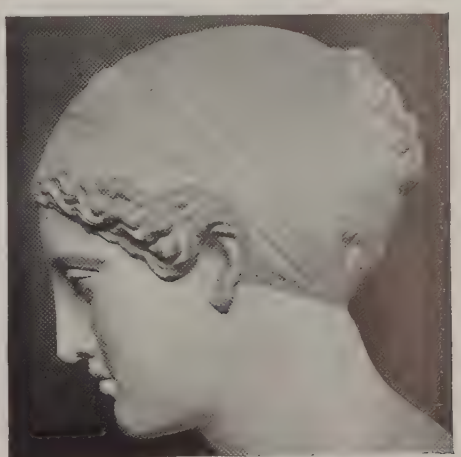

FIG. 22

HEAD AT VIENNA

FIG 23

FIG. 24

FIG. 25

HEAD OF THE HOPE STATUE (FROM OSTIA)

cohortes equitatae and three *cohortes urbanae*. It seems quite probable,[1] however, that the praetorian cohorts were *miliariae eqq.* from the first; and the provision of two-storey barracks, not known elsewhere in the Roman world, may be one of the *arcana imperii*; for it doubled the floor-space but halved the area of the fortress, thereby concealing the truth, that Rome was dominated by a super-fortress bigger than any of its day. Connected with the same desire for maximum accommodation are doubtless the *contubernia* in the fortress-wall (Fig. 1).

But the discovery of these barracks unchanged reveals that the main lines of the camp remained the same until their destruction [2] by Constantine in A.D. 312. And the arrangement is hinted at by the picture on the coins [3] of Claudius, where the main front, and an ornate *sacellum* in the *praetorium*, face the city. Small differences from the normal frontier fortress were caused by the proximity of Rome. The Porta Praetoria, as the position of a triumphal arch [4] and of the two remaining gates unquestionably proves, faced westwards towards the Palatine [5] and not eastwards towards the open country, a change no doubt connected with the ceremonial entries of the Emperor. The walls, if proved defensible enough by the Vitellians,[6] are no more than eleven feet high, about three feet lower than the usual estimate of walls of the kind; while the gates are an interesting combination of the triumphal arch with crenellated towers (see Pl. VI.). To right and left of the *Porta Praetoria* a road took the place of the ditch usually surrounding a fortress; in front came the parade-ground, the scene of Caratacus's bad guess at Roman frontier policy.[7]

The Tiberian wall (Fig. 2) is preserved in more detail. It was made of concrete faced with dark-red or pink bricks, resting upon a six-foot triple-stepped brick plinth, supported in turn by a solid concrete foundation which was laid

FIG. 1. TIBERIAN *CONTUBERNIUM* IN THE WALL OF THE CASTRA PRAETORIA (Parker, *circa* 1870).

originally between short planks in the usual Roman manner, and was exposed even in later Roman times (see p. 19). At the N.E. angle and for a few feet further west, where there was evidently bad ground, the foundation was brick-faced and provided with tufa or tile relieving-

[1] Cf. Appian, *Bell. Civ.* v. 3, and Tac. *Hist.* ii. 93.

[2] Zos. ii. 17.

[3] There were four issues of this type, all from the Rome mint—the first in *AV*, the rest in *AV* and *AR*; see Mattingly, *Coins of the R.E. in the B.M.*, I. Pl. 36, Nos. 4, 12, 13, 15, 16, 26.

[4] Vespignani, *Bull. Com.* I. (1872), pp. 103—110, Pl. XI.: *F.U.R.* Sheet XI. is not to be trusted.

[5] This contradicts Hyginus, c. 56: it has caused much confusion; *e.g.* Cagnat, *s.v. praetoriae cohh.*, in Daremberg-Saglio, and Hülsen-Jordan get matters wrong. The *via principalis* must, as always, run straight through. Then we get a fortress with *Porta Decumana* out of centre, as often, *e.g.* Haltern, Oberaden.

[6] Tac. *Hist.* iii. 84.

[7] Tac. *Ann.* xii. 36. Here doubtless was the *tribunal* shown on Nero's *adlocutio* coins.

arches [1] (Fig. 3), though even these did not prevent slight twisting as the concrete set. Level with an external quadruple string-course was the rampart-walk, arranged partly over the vaulted *contubernia* noted above. Then came a low breastwork, provided with a coping and small battlements at every twelve feet, slightly set back on the coping and capped with big tiles (Fig. 2).

The *Portae Decumana* (east) and *Principalis* its general outline and some of its flat and restrained decoration, so typical of Roman utilitarian architecture. Neither the curiously high battlements on the towers nor the treatment of the attic are in doubt. But satisfactory knowledge [3] of the internal arrangements is not now obtainable. It seems that the backs of the towers did not project beyond the chambers attached to the fortress wall, and it is probable that they did not

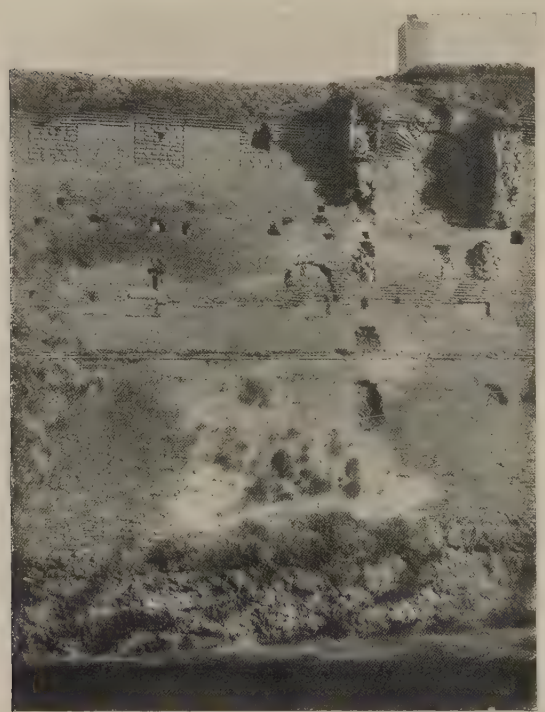

Fig. 2. North Wall of the Castar Praetoria. Work of Tiberian and three succeeding periods, cf. Plate 7.

Fig. 3. N.E. Angle Tower of the Castra Praetoria. Brick-faced Foundation with Relieving Arches.

Dextra (north) (Fig. 4) [2] are still visible, though walled up. The first is here shown (Pl. VI.) in an elevation by Mr. M. A. Sisson, Jarvis Student in Architecture of the British School at Rome. The lower view shows how much now is left of the gate, and how it was possible to restore therefrom contain staircases.[4] The details of the archway, which would have shown whether the lower floors of the tower were entered therefrom, are entirely masked by small vaulted chambers of later construction, apparently contemporary with the gallery of the City Wall.

[1] Rivoira notes these as early tile relieving-arches: their real function was to hold the concrete firm as it set. *Architettura R.* p. 53, Fig. 48.

[2] A schematic view of the N. gate appears in Daremberg-Saglio, *s.v. Praetoriae cohh.*

[3] The plan given is traditional: the earlier versions differ; cf. Canina and Ciconetti-Parker: everything, in fact, is masked by late-Roman brickwork.

[4] Vitruvius *de Arch.* i. 5, 4.

Five other Tiberian towers can still be traced, not four or three, as Rivoira and Lanciani respectively suggest.[1] They were slightly higher than the gate-towers, but otherwise the same. That to the north of the S.E. angle was early reconstructed, as were the parapets between them, and its terra-cotta window-hoods were replaced by tiles radiating from a lowered centre. Thus, including the gates, the Camp was once provided with at least sixteen towers : while symmetry suggests that there may have been as many as four more. In connection with building methods it is worth note that the battlements on the wall were not constructed until after the whole of the breastwork had been provided with a tile coping, upon which they were placed, slightly set back, and spaced out independently of the towers, as is shown by an awkward gap on the south side of the first tower south of the N.E. angle. Such are the details of the defences of Seianus' Camp which can still be seen.

Literature demonstrates that the subsequent history of the fortress was not always calm. So early as A.D. 69 [2] the supporters of Vitellius took refuge within its walls, and their pursuers tore down the gates. Then when Severus officially threw open the Praetorian ranks to legionaries—men described by Dio [3] as wild in appearance, terrible in speech, and uncouth in habits—brawls with the City populace, not unknown before, became frequent. Two desperate battles are known,[4] preceded by sieges. Events like these would account for the refacing of Tiberian parapets (Fig. 5), and for curtailing the top of the quadruple string-course, which provided too good a hold for scaling-ladders. But the literary sources, Tacitus, Herodian, and the pseudo-Capitolinus, give no details of restorations, though Herodian describes the fighting as well as an eye-witness might have done. An altar to Fortuna Restitutrix of Caracalla's time [5] gives a hint of building activity (see below). So it becomes necessary to examine what the visible remains of the Camp have to tell, and then to inquire whether their story can be fused with other ancient evidence. They tell us clearly of successive reconstructions, to which it seems advisable not to attach dates until all are described.

Period 2.—Repairs of this period can be

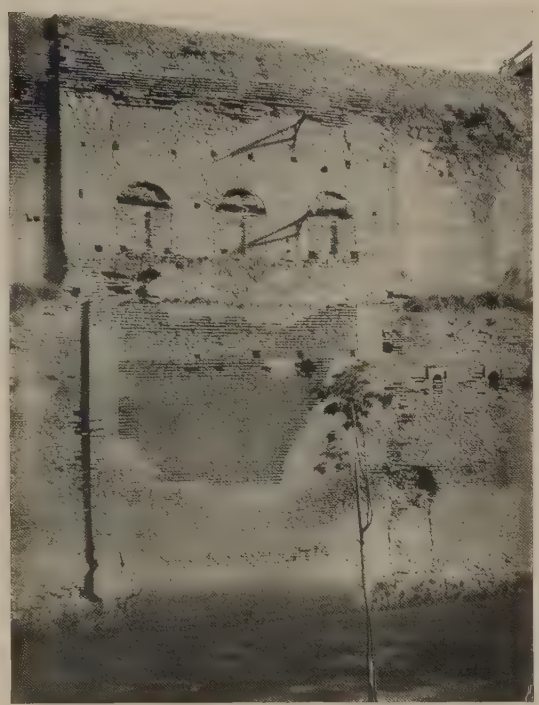

Fig. 4. Porta Principalis Dextra, Castra Praetoria. Tiberian Gate with later Tower Replacing the Original Attic.

detected at various widely separated points on the fortress-wall and at the *Porta Decumana* (Pls. VII., VIII.). Refacings of the wall have obscured its traces elsewhere. Each tower of the *Porta Decumana* received straw-coloured [6] brick battlements, and an addition of the same material to its breastwork. Two new battlements were built against the Tiberian attic to right and left; but they did

[1] *Architettura R.* p. 53 ; Lanciani, *F.U.R.* Sheet XI.
[2] Tac. *Hist.* iii. 84.
[3] Dio lxxii. 4, 6.
[4] Herodian, ii. 6–12 = *Vit. Maxim. & Balbin.* 10.
[5] *C.I.L.* vi. 30876 : *Antoninianae* is erased.
[6] See n. 2, p. 16.

not reach to the top of it, as is shown by a small piece of Tiberian brickwork, very valuable as giving, by its slope, that of the pediment once attached beneath it. On the fortress-wall the Tiberian coping was torn off, and each space between the battlements was filled in with straw-coloured bricks (mistaken by antiquarians,[1] familiar with the long mediaeval parapets, for the battlements themselves). In some places the Tiberian coping was replaced on the level space thus gained, and on the north wall every second

side of Viale Castro Pretorio. So far as visible evidence shows, it was constructed when the Tiberian work was in perfect order, except for the repairs mentioned in the account of Period I., which are best assigned to a subdivision of that period, since they kept the character of its work, if not its quality.

Period 3.—The operations of this and the next period are closely connected (Pls. VI., VII., VIII.). The first evidence of change is the re-building of many battlements on the north wall

Fig. 5. East Wall, Castra Praetoria. Tiberian Parapets Repaired under Vespasian.

Tiberian battlement was removed; but this process is not common all along the wall, and seems only to indicate that different building-gangs were tackling the problem in different ways. What did follow all round the wall as the second stage of the process just described, was the erection of a new top, faced with short dark-magenta bricks and capped by a breastwork faced in rather rough alternate courses of brick and tufa (*opus mixtum*): this in turn was crowned with rather large brick parapets.[2] This wall, excepting the parapets, can be seen in section on the west

of Period 2: these were of smaller pattern than those which they replaced, and were faced with *opus mixtum*. The south tower of the Porta Decumana also received repairs of which the progress can be followed in some detail. It is evident (see Pls. VI., VII.) that much of the breast-work of Period 2, with a correspondingly large piece of facing belonging to the Tiberian breast-work on which it had been built, fell away, either through chance, or through human agency during an assault on the fortress. Repairs then proceeded as follows. The Tiberian facing was replaced by

[1] *E.g.* Canina, copied by Durm, *Baukunst*, ii.

[2] Presumably this wall was reached by stairs parallel to the wall, and set at intervals on top of the *contubernia*.

new work which was left to set before anything more was built upon it, as the nature of the material demanded. Upon this was presently erected a new breastwork, faced with *opus mixtum* like that of the parapets added to the north wall, and this was provided in turn with a brick parapet to match the northern straw-coloured parapet of Period 2 which still remained. Later, the new facing, which had been applied below, peeled off;[1] but this affected neither breastwork nor parapet just described, since, as the straight joint above it demonstrates, it had been built in a separate piece.

Period 4.—There now followed a set of repairs involving additions to the old plan. On the north wall two rather long and low towers were built and faced with *opus mixtum*. All the Tiberian attic was removed from the north gate: at the east gate enough Tiberian facing remains to give us the attic's north edge and the slope of its pediment, while a break in the later refacing preserves its southern limit. Then above each gate was erected a new tower, with triple windows, matching those already described. That on the north gate may still be seen: the other was copied by Luigi Rossini with great care before it disappeared.[2] At the same time the battlements on the older towers were widened. The additions on the south tower were faced with *opus mixtum* like that of the new central tower. Those on the north were faced in brick similar to that covering the corner parapet, which had been added shortly before to the south tower as a first repair to damage. This is an interesting cross-correspondence of materials, for it seems to prove that all the structures just mentioned were erected during one period of building activity, during which, however, the architect changed his mind about what was wanted, a frequent event in Roman building operations.

If it is remembered that earthquake or natural decay does not remove or leave intact whole series of parapets discriminately, but that such actions result from human agency, it is not hard to reconstruct the events which led to these repairs. There was an assault on the fortress, vigorous enough to destroy some of its parapets and to disfigure its back gate. Quick reconstruction followed, intended at first only to mend what was ruined. But while this was in progress someone in authority devised an improved defensive scheme, involving higher and quite handsome towers, for those which Seianus had built were at this time dwarfed by the wall of Period 2. Some such explanation as this would account for correspondences between the building materials on the *Porta Decumana* and north wall.

Period 5.—This period is marked by the introduction of entirely new features. The height of the fortress wall was increased once again, so as to reach nearly to the top of the towers of Period 4, or at least to deprive them of any useful function. This new wall does not now appear frequently, owing to refacing or demolition of the upper part of the structure. But what is left of it resembles the wall of Period 2 in being faced with brick and capped with *opus mixtum* breastwork and battlements. It is worth note that these battlements bear at some points a new ratio to the space between them: for the interval is little more than one-third as long as the parapet, as examination of the filling makes quite certain. New towers were introduced (Figs. 6, 7), of a kind that seems unique in Roman architecture, and is best illustrated by the figures just quoted. As Reber remarked,[3] the curious beak in front resembles the cut-water of a bridge-pier; but its real function is that of a buttress, and it adds the pointed type of external buttress to the Roman forms thereof cited by Rivoira.[4] This interpretation of function is confirmed by two

[1] This is the facing in the lowest cross-hatched division on the left-hand tower of Pl. VII., c: cf. also Pl. VI.

[2] Rossini, *Le porte antiche e moderne del recinto di Roma*, Pl. XXXIV.: when this is compared with Canina's production, no praise is too high for it.

[3] Reber, *Ruinen Roms*, p. 521.

[4] Rivoira, *Arch. R.* Fig. 279. Gauckler, *Install. Hydraul. R. en Tunisie*, Vol. II. Part I. pp. 67–68, Fig. 20, figures beaks that are unquestionable buttresses, as here. Ivanoff, *Bull. de la Societé Archéologique Bulgare*, VII. (1919–20), p. 90, gives two triangular towers from Kustendil of this period.

Fig. 6. S.E. Angle Tower of Period 5, Castra Praetoria (Parker).

Fig. 7. Tower of Period 5 near N.W. Angle, Castra Praetoria; and the Junction with the City Wall (Parker).

further points. The Tiberian wall had already been put to more strain than its builders ever intended that it should bear, by the additions of Periods 2, 3 and 4. Obviously it was felt that further heightening of the wall without strengthening it in some way involved serious risk of collapse; and to add external buttresses was the simplest method of giving strength without interfering with arrangements within the fortress. So these structures, at once buttresses and towers, were set up. The second point, that they were spaced quite irregularly, and evidently with an eye towards prevention of collapse, is an equally good proof of the intentions of those who built them. Durm illustrates these towers as if they were Tiberian; it is therefore evident that he never saw them, but was misled by a sketch-book of about 1830, now preserved in the German Institute of Rome.[1] Had he observed them on the spot he would have seen that the only wall into which they are bonded belongs to a later period (see Fig. 2), and that one of them actually screens the first Tiberian tower west of the N.E. angle: he must also have noted that both parapets and doors of this later period are the first ever arranged to fit them.

Finally, the Tiberian gate-towers received a new upper storey. They could now no longer be considered as anything but integral parts of the wall, since they did not overtop it, as a small part of the towers of Period 4 continued to do. Accordingly at the east gate the spaces between the battlements were filled up with indiscriminate masonry, and on the level space thus gained a window mullion was built, while the sides of the windows rested on the parapets of Periods 2 and 3. Three new parapets with which this structure was crowned were drawn by Luigi Rossini,[2] and everywhere except at this gate these parapets ran level, but not quite flush, with those already assigned to this period. At the north gate later refacing has completely blotted out this phase of work; but at the other Tiberian towers, which likewise disappeared from the scheme of defences, all battlements seem to have been knocked off, and the wall of the period was built right across them without any projection. It is noteworthy that the gate-towers did not meet with this fate. Evidently they were still regarded as flanking the gates, an important point if it is remembered that after the demolition of the fortress[3] by Constantine in 312 its gates must have been blocked up.

Period 6.—To this period belongs a final heightening of the fortress-wall, achieved in two ways. There was added, not far above the level of the top of the central gate-towers of Period 4, a new line of parapets, not now visible at any point, but drawn in the anonymous sketch-book used by Durm, and shown in a photograph (Fig. 8) by Parker. This line of battlements, however, does not add to the height of the wall appreciably, and its real purpose must have been to provide a level top to the gallery now built behind the wall. It marks the time when the fortress-wall became an integral part of the city wall, and when, accordingly, its gates were blocked. At the same time effective height was increased by exposing the foundations of the wall of Period 1 and towers of Period 5. This was done to the depth of about three feet[4] all round the fortress.

A *terminus ante quem* for this reduction of level is given by a discovery made outside the N.E. angle of the fortress in 1888. On the low level, quite close to the fortress-wall, were found walls built of bricks bearing the stamp OF·S OF·D [*om De*] CEMB,[5] which comes from the *Officina Domitiana*. This factory first produced tiles so stamped for the Baths of Diocletian, dedicated in A.D. 305–6: thus the fact that this stamp only occurs once

[1] Mau, *Katalog*, i. 279. The artist is unknown.

[2] See above, n. 2, p. 17.

[3] Zos. ii. 17.

[4] Lanciani's estimate of 3.50 m. (*N.d.S.* 1888, p. 734) is too large.

[5] Lanciani, *ibid.*: also *C.I.L.* xv. 1, 1578*a*, 6, *of(ficina) s(ummae* or *-ummarum), of(ficina) Dom(itiana) Decemb(ris)*. See also facts about these tiles noted below, p. 21.

(doubtfully) in the outbuildings of the Baths, whose construction would naturally come last, suggests that it really belongs to the early years of Maxentius's reign (306–312), and that the house from which it came was built at that time. To this time or before it, therefore, belongs the blocking-up of the gates of the Castra Praetoria; and it is thus clear that this measure had already

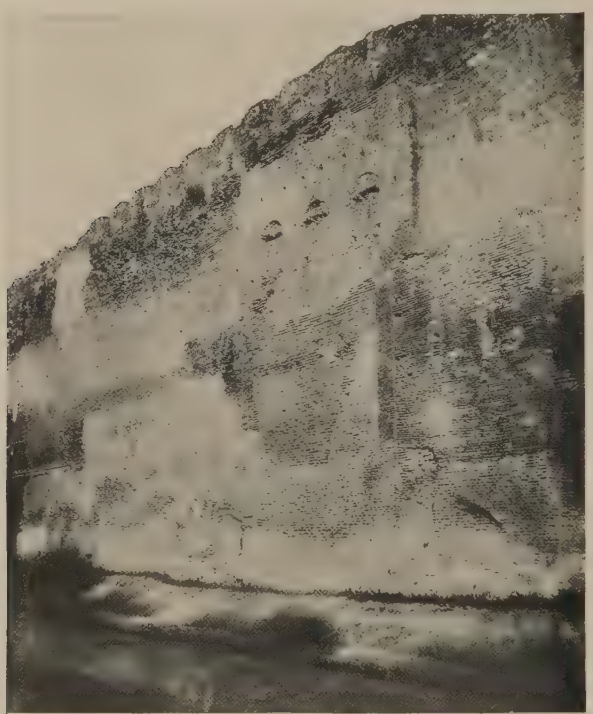

Fig. 8. Porta Principalis Dextra, Castra Praetoria, with Remains of Parapet of Period 6 (Parker).

been taken before Constantine knocked down the inner wall of the fortress and disbanded the Praetorians. So we have now reached or passed over work at the Castra Praetoria which must be assigned to Aurelian.

(II) The Original form of Aurelian's Wall.

Before assigning the changes just described to a historical context, it is necessary to say something about the original form of Aurelian's Wall. I hope to treat this subject in detail elsewhere, but the main results of my research thereupon may be summarised here.[1]

Aurelian's Wall was built at a time when the Teutonic and Cimbric invasions were in danger of repetition; and the first aim of its builders was the speedy construction of an obstacle sufficient to keep out barbarian cavalry.[2] There was neither need nor time to raise so high a wall as now exists. The present wall then was not the first. This is proved by the existence of a much lower wall (forming the base of the present one) to be seen in section at the Porta S. Paolo. Its front, capped with parapets, still forms the lower part of the later wall's face at many points between the pyramid of Gaius Cestius and Porta Nomentana. The gates,[3] too, were much different from those which can now be seen; but that is too long a question for the present context. Let it suffice to say that there is no doubt about the original form of Aurelian's Wall of Rome. It had no gallery and no very ornate gateway; it was, in fact, a simple wall of the traditional Roman type, not more than twenty-five feet high.

The first wall did not keep its present form for long; minor alterations quickly followed, as is proved by additions to the parapets visible in the Piazzale Tiburtino, and in the Viale Labicano. Soon came a great change: the present gallery was built on the old rampart-walk, and the wall was thus doubled in height. The brickwork of this great addition is everywhere markedly too good for Honorius, to whom history assigns the first great reparation of the wall. It is, indeed, very like that of the Maxentio-Constantinian buildings of Rome,[4] or like that of the Baths of Diocletian. And here the evidence from the Castra Praetoria becomes of great value.

[1] See also *Discovery*, vi., No. 68, August 1925.

[2] *Hist. Augg., Aurelian.* 21.

[3] The type is given by the Porta Nomentana; see *Discovery*, August 1925.

[4] E. van Deman, *A.J.A.* XVI. (1912), p. 424 ff., Figs. 8, 9 and 10. Aurelian's work, however, goes with 8 rather than with 9 or 10. To avoid a misjudgment, 9 must be visualised with the missing mortar.

(III) Aurelian's Work at the Castra Praetoria.

There is no doubt that the final alteration to the walls of the Castra Praetoria gave them a considerably greater height than Aurelian's City Wall; and one may still see from inside the Fortress that it involved the addition of a high gallery behind them. This stage, therefore, corresponds to the second period in the City Wall, and not to the first. Now it is especially evident that Period 6 at the Castra Praetoria is no second version of the schemes of Period 5: the changes at the gates, for example, show that a fundamentally different conception had been formed of the part to be played by them in defence. On the other hand, it has been shown that the stamped tiles found outside the N.E. angle of the fortress demonstrate that Period 6 is not later than the time of Maxentius, although they shed no light on how much earlier the process of levelling had taken place.

Here, however, it is relevant to note that in the City Wall the western Porta Ostiensis[1] was blocked up with Hadrianic tiles and with large tiles stamped OF·S OF·DOM·DECEMB. Hitherto this work has been assigned to Honorius, but the date of the tile-stamp just quoted is ninety years earlier, and, had Honorius done the work, later fourth-century tiles ought to have appeared.[2] The inference is that the gate was blocked in the early fourth century, that the demolition[3] of some Hadrianic building provided material, and that new tiles stamped OF·S OF·DOM·DECEMB· were provided to eke out the older material. And one may suspect that the closing of the western Porta Ostiensis coincides with that of the gates of the Castra Praetoria, and with the addition of the gallery to Aurelian's Wall; for in each case early fourth-century tiles give a terminus. Similarly when the breach in the wall was made east of Porta S. Paolo, where the first two periods in the City Wall are evident to-day, the only tiles later than Hadrian which were recorded bore the same stamp, OF·S OF·DOM DECEMB.[4] These tiles cannot belong to Aurelian's Wall, since they are of later date. It is therefore natural to think that they were used to build the gallery, where the style of brickwork emphatically excludes a Honorian date. The work, then, is due to an Emperor of the early fourth century. The only appropriate historical occasion is the defence of Rome by Maxentius. And this would aptly explain the silence of literature. For if Maxentius made the change, Constantinian historians would hardly mention such a bulwark of Separatism, nor could a submissive Senate suitably ascribe it to Constantine, as it did[5] the Basilica. Actually the one source without Constantinian bias reads *fossatum aperuit sed non perfecit*[6] (*Maxentius*): this is more than any other source mentions, and the making of a ditch would go well with, but would follow,[7] the heightening of the City Wall. So it is not impossible to believe that while Maxentius was striking coins[8] to commemorate the deliverance of his capital from Severus Caesar, he was strengthening her ramparts against sterner foes.

Period 6 at the Castra Praetoria and Period II. on the City Wall thus go to the opening of the fourth century and provisionally to Maxentius. And the wall of Period 5 represents Aurelian's work at the Castra. Its towers are unique in shape and purpose; but its parapets correspond to those in the Piazzale Tiburtino as altered, and

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[1] Lanciani, *Bull. Com.*, XX. (1892), p. 92: *C.I.L.* xv. 1, 502, 1315*c*: also *Mon. Ant.* i. p. 513, where Lanciani says more: in connection with the dating of posterns it is noteworthy that this one had travertine imposts.

[2] As *e.g.* between Porta Asinaria and Anfiteatro Castrense; see *Suppl. Pap. Amer. School in Rome*, i. 1905.

[3] That was Aurelian's way of building; see Lanciani, *Bull. Com.*, 1892, p. 93.

[4] This fact has been obscured by the presupposition that no work took place on the wall between Aurelian and Honorius.

[5] Aurel. Victor, xl. 26.

[6] Mommsen, *Chronograph. Abhandl. d. K. Sächs. Ges. d. Wissensch.*, ii. p. 648.

[7] This would be the practical sequence.

[8] Cohen, *Méd. Imp.* vii., Maxence, 20–40, etc.: cf. Lactant. *de mort. persecut.* 26.

its breastwork is faced with *opus mixtum*, as is much of Aurelian's work on the City Wall proper.

(IV) The Castra Praetoria from Tiberius to Aurelian.

The subsidiary first period and the two main series of alterations which follow it accord well with the history of the Castra as known from literature and other sources. It has already been noted that the first damage to the fortress-wall, repaired in rather coarse yet early brickwork, belongs most probably to the time of Vitellius, when the place was drenched in blood.[1] But although human life was cheap, it is probable that the damage to buildings was relatively small.

Then followed a long quiet. During the Antonine age water-pipes were repaired,[2] but that is a work which must have been often necessary, owing to the incrustation[3] formed therein. The brickwork of the next alteration, with its extensive admixture of yellow bricks,[4] belongs to the age of the Severi. Of these emperors it was unquestionably Caracalla who took most interest in the Praetorians, especially after they had connived at his murder of Geta. Under him water-pipes[5] were again laid down, and the work continued under his supplanter Macrinus.[6] A more precise indication of activity is the altar exhibiting the epithet *Antoninianae*, set up to *Fortuna Restitutrix*, now in the Terme Museum.[7] This was set up by the Tribune of the Sixth Cohort in the mosaic-paved bath-room of some officer's quarters. Höfer[8] explains the unique epithet *Restitutrix* by expanding it to *Fortuna quae proelia restituit.* But the more reasonable interpretation is 'Restorer of buildings,' a favourite rôle of Fortuna, who is also especially associated with bath-lounges and the games of chance played therein. So there is a case for believing that more things than water-pipes were re-modelled under Caracalla at the Castra Praetoria, and the change in height of the wall would suit his reign, when the Praetorians became more unruly than ever before. The third period, with its hint of disaster and hasty repair, followed by a more effective scheme of defence, fits the text of Herodian[9] admirably. There were two sieges in the reign of Maximus and Balbinus, the first involving heavy fighting from the walls. It is tempting to believe that the first repairs followed these events; and since it is known that there was, for political reasons, a shortage of men in the Guards at this time, the programme of building probably did not cover more than repairs, as the extant remains suggest. Then followed a new enrolment; and it would fit the evidence from the wall itself to believe that the increased strength of the force prompted the undertaking of a more ambitious scheme of rebuilding. Thus, at least, we gain a story which combines both the archaeological and literary evidence.

Literature and archaeology also combine to show that when Constantine triumphed at the Pons Mulvius there was nothing for him to do to the military arrangements of the city except to disband the Praetorians, and demolish the inner wall of their Camp.[10] They were an antiquated institution as soon as it had become necessary for the Emperor to be absent from Rome continually. And when they had reached that stage of insolence which prompted them to bargain for the Imperial purple over the walls of their fortress,[11] the time was surely ripe for their dissolution.

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[1] Tac. *Hist.* iii. 84. [2] *C.I.L.* xv. 2. 7240, A.D. 175.

[3] Contributed by the Aqua Marcia to the Marcia-Iulia-Tepula *castellum* near by.

[4] For this repair must have been made the tiles stamped CASTRISPRAETORIA/G (*C.I.L.* xv. 1, 3 = a bad figure in Daremberg-Saglio, *s.v. Praetoriae cohh.*). The type is not unique, for the *bearded* head, described in *C.I.L.* xv. 1. 381 as of Minerva or Roma (*sic*), occurs on tiles from the *Figlinae Oceanae Minores* under Caracalla. The period of the type is A.D. 200–222, *vide loc. cit.* Dressel's dating, in *C.I.L.* xv. 1. 3, is unwarranted.

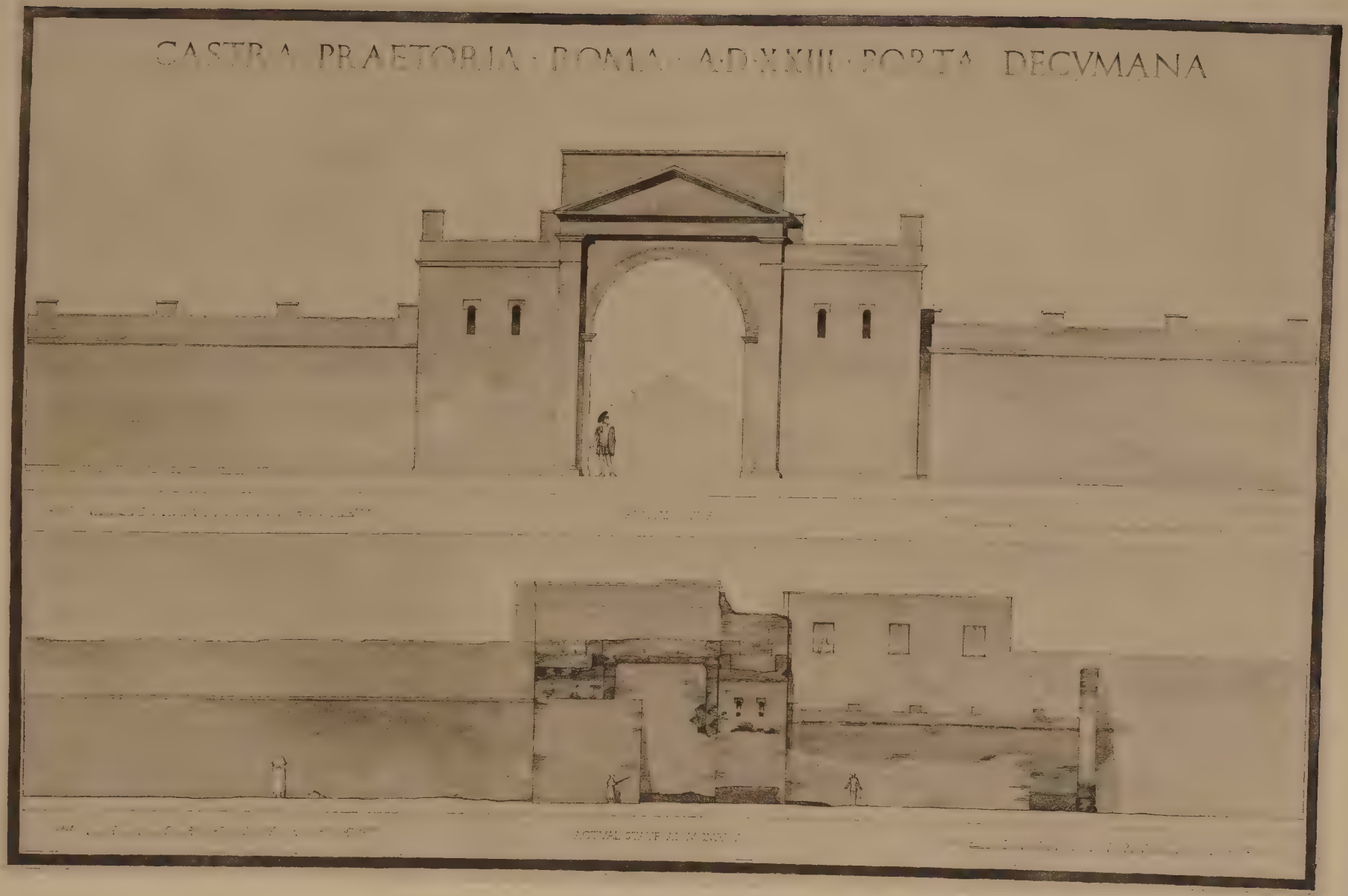
[5] *C.I.L.* xv. 2. 7237. [6] *Ibid.* 7238.

[7] *C.I.L.* vi. 30876 = Terme 185(321), *Cat.* 1922, p. 119: both accounts omit to note two trial S's, carved on the right-hand side of the stone.

[8] Roscher, *Lexik. d. G. & R. Mythолog.* s.v. *restitutrix.*

[9] Herodian, vii. 11–12.

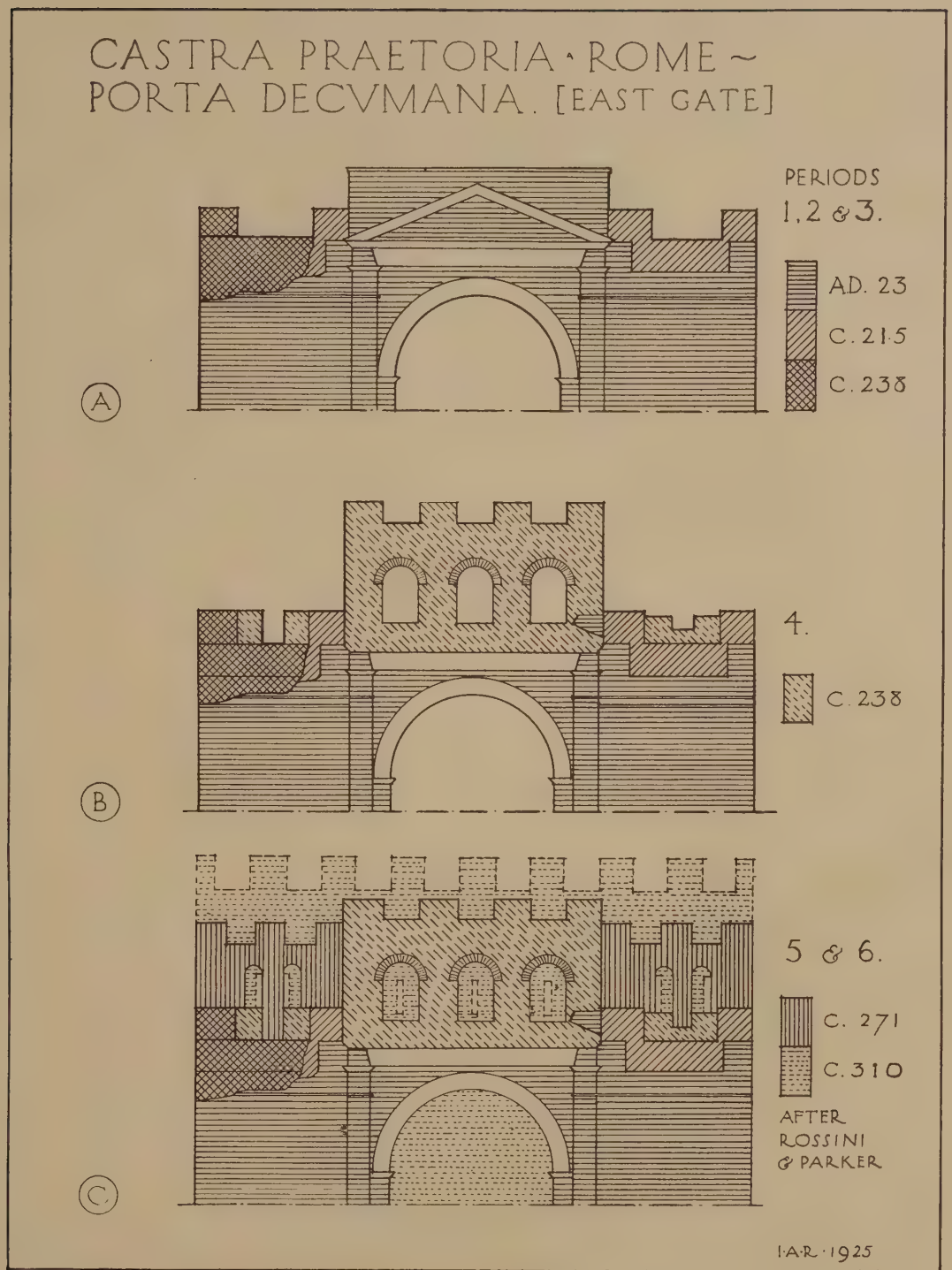
[10] Zos. ii. 17. [11] *Hist. Augg. Did. Iulian.* 2.



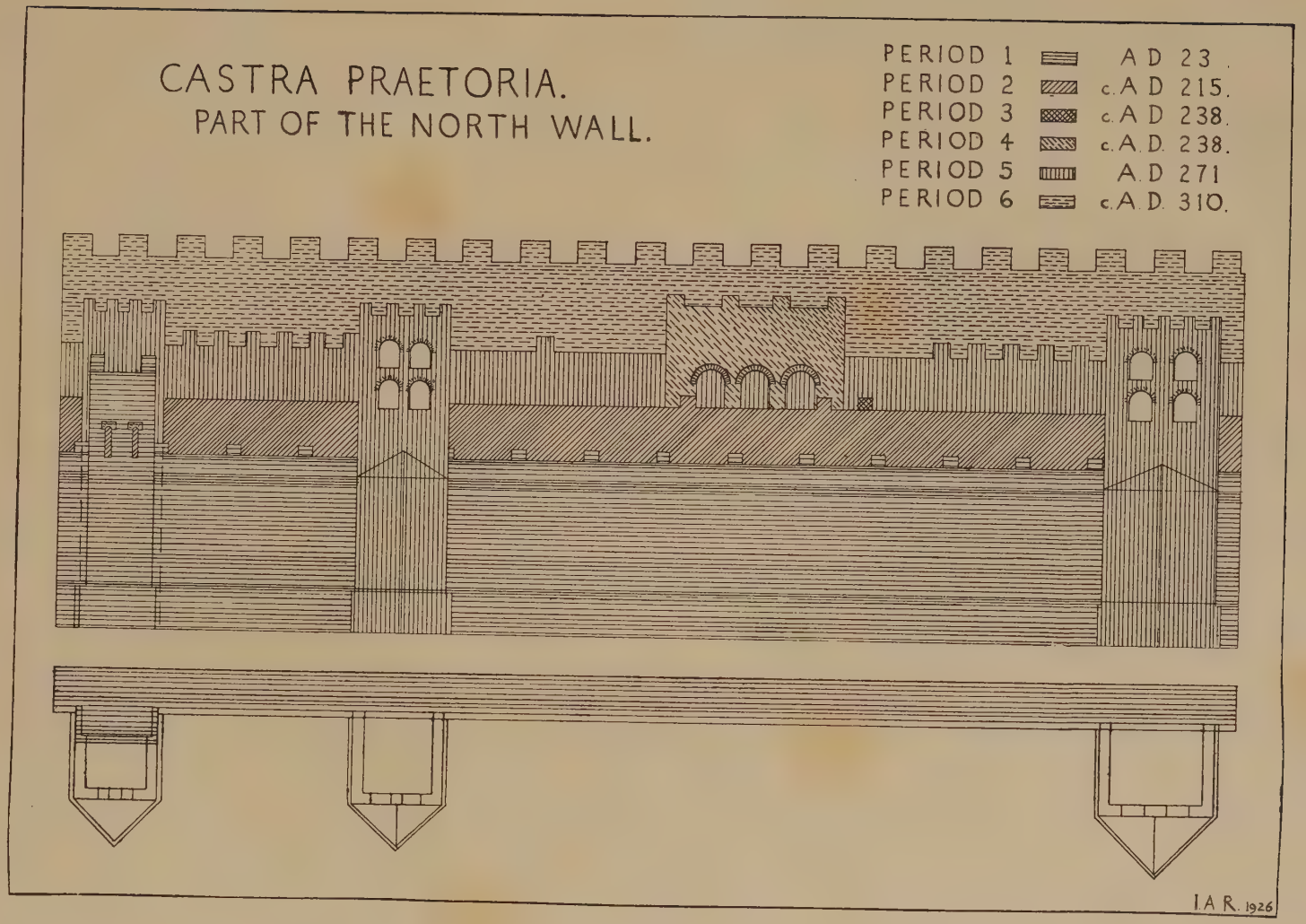
CASTRA PRAETORIA

RESTORATION, AND ACTUAL STATE (TO HALF-SCALE), OF PORTA DECUMANA

PLATE VI



CASTRA PRAETORIA. UPPER HALF OF PORTA DECUMANA AT SUCCESSIVE PERIODS.


CASTRA PRAETORIA.
PART OF THE NORTH WALL.
PERIOD 1 A D 23.
PERIOD 2 c. A D 215.
PERIOD 3 c. A D 238.
PERIOD 4 c. A. D. 238.
PERIOD 5 A. D 271
PERIOD 6 c. A. D. 310.
I. A. R. 1926

CASTRA PRAETORIA. PART OF NORTH WALL, TO THE EAST OF PORTA PRINCIPALIS DEXTRA, AT SUCCESSIVE PERIODS

THE MAUSOLEUM OF AUGUSTUS.

(Plates IX–XIX)

By R. A. CORDINGLEY and I. A. RICHMOND.

Note.—*In order to define the responsibility for this article, it may be explained that the drawings are the work of R. A. Cordingley, and that the first part of the text is by I. A. Richmond. The rest of the text is the result of close collaboration between the two authors.*

I. The Literary Sources.

The early history of the Augusteo, as the Mausoleum of Augustus is now called, wins little space in contemporary literature. Among classical writers first Strabo [1] and then Suetonius [2] tell us that Augustus built for himself and his family, between the Via Flaminia and the Tiber, this huge circular tumulus, crowned with evergreens,[3] surmounted by his own effigy in bronze, and retained by a lofty base of white stone. And these accounts supplement one another in detail, Suetonius noting that the work was done in 28 B.C., and thereby causing one to wonder whether Antony's fate and the conspiracy of Lepidus set Augustus about building his own last resting-place; while Strabo mentions that an *ustrinum* of similar stone, with an iron railing in a circle round it, stood not far away. The building was ready by 23 B.C., when Vergil spoke [4] of it as new. Many people—we know of fourteen great ones [5]—lay within; but the last Emperor to be buried there was Nerva,[6] and then the tomb, entrusted to a procurator's care,[7] was only opened for a short time to house, in the part allotted to Lucius and Gaius,[8] the remains of Julia Domna. In the fourth century it found a place in the list of City monuments,[9] and Ammianus Marcellinus [10] pauses to state that two obelisks in front of it were later additions. After that classical history tells no more of the building or of its fate.

The locality is mentioned next in a diploma [11] of Agapitus II, dated March 25, 955, which calls it an eminence, on which (*in cacumine*) stood a church of S. Angelo de Agosto. The phrase *in cacumine* is, however, perhaps not to be taken literally, since Poggio,[12] in 1431, when the church still existed, speaks of the site as covered with vineyards. Probably the church lay near the

[1] Strabo, v. 236.

[2] Suetonius, *Vit. Aug.* 100.

[3] These are omitted from the restoration proper, for sake of clearness, but their probable arrangement is shown on a small-scale drawing (Fig. 3).

[4] *Aen.* vi. 873.

[5] Viz. Marcellus, Agrippa, Gaius, Lucius, Augustus, Livia, Drusus, Germanicus, Tiberius, Agrippina, Livilla, Claudius, Poppaea, Nerva.

[6] Aurelius Victor, xii. 12; cf. Cass. Dio, lxix. 33.

[7] *C.I.L.* vi. 8686.

[8] Cass. Dio, lxxviii. 24, 3.

[9] *Curiosum*, Urlichs, *Codex Urbis R.*, pp. 20–21.

[10] Amm. Marc. xvii. 4, 16. They do not occur in the elder Pliny's list.

[11] *Arch. R. Stor. Pat.* 1899, xxii. p. 268.

[12] Poggio, *De varietate fortunae* = Urlichs, *Cod. Urbis R.* p. 240; cf. Ducange, *s.v. cacumen.*

edge of the ruin, as did all the buildings shown on Van Cleef's panorama [1] (1550) or on Sebastian Munster's view [2] of 1549, resembling, in fact, the structures round Caecilia Metella's tomb. Almost certainly the main buildings of the first Colonna castle on the site were so arranged, although we hear all too little of this forgotten stronghold. It was destroyed [3] in 1167; and in July 1241 its successor was held for Cardinal Giovanni Colonna against Gregory IX, and was taken by Matteo Russo the following August.[4] But the Colonnas soon secured the site again, for it is mentioned as *munitiones Augustae*, the property of Oddo Colonna, in a Palestrina [5] deed of 1252; and the fact that Jugurtha and Sciaretta Colonna ordered [6] the cremation of Rienzo there in 1354 suggests that the ownership was not temporary.

The description of the building by Anonymus Magliabecchianus [7] in 1410–1415, with its mention of marble plaques, is probably imaginary. But we know that this century saw much spoliation of the fabric. Before 1409 Agrippina's ash-cist [8] had been discovered, and by 1427 Martin V. (Oddo Colonna) made over [9] the spot to the lay-brothers Gallo, for twenty years, without conditions. In 1431 Poggio [10] saw vineyards thereon, and in 1452 Giuliano Ser Roberti built [11] lime-kilns and an inn near by. Waste land thereabouts passed [12] to Aurelio and Gianbattista de Spiritibus in 1488, and twenty-four years later the monument itself became [13] the property of Franciotto Orsini.

By 1519 the first archaeological records and drawings had been made. In that year an obelisk was removed from behind the church of S. Rocco, and on July 14, as a Vatican MS. tells us, a considerable part of an inscribed marble slab,[14] in honour of Gaius Caesar, was discovered fixed to the outer wall of the building. Baldassare Peruzzi measured the obelisk and copied [15] the inscription with great care. It is more important, however, that he triangulated and measured [16] the wall to which it was fastened, and drew at the same time a full Doric entablature of very large size, typically Augustan [17] in character, which does not seem to belong to the lowest stage of the building, but rather to the upper half of the exterior ring. From the outer wall he gives a measurement to a 'high' or 'innermost' circle. But this is probably [18] the result of guess-work; for it seems impossible that any wall should have been visible in Peruzzi's day at the distance he gives (*i.e.* 97½ *piedi romani* [19] = 13 *canne*): much more probably he measured to the end of the entrance-passage—a point that may still be reached—and then, guessing that the structure was symmetrical, laid down an inner ring at one-half the distance he had actually measured. This view, that there were in fact three walls, is taken by Marliani (1534), although only one could be seen in his day; and about

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[1] See Bartoli, *Cento Vedute*, Tav. A, p. 20.

[2] Hermanin, *Stadt Rom im xvii. Jahrhundert.*

[3] Villani = Muratori, *Rer. Ital. Script.* xiii. p. 131*a*. Nibby adds to this tradition an unwarranted statement that the Mausoleum then suffered heavily, an error consecrated by Lanciani.

[4] Richard de St. Germain = Ughelli, *Ital. Sacr.* x. p. 238.

[5] Patrini, *Memorie di Palestrina*, p. 411.

[6] Muratori, *Ant. Ital. Med. Aevi*, iii. p. 539.

[7] Urlichs, *Cod. Urbis R.*, p. 162.

[8] *C.I.L.* vi. 886.

[9] Cerasoli, *Bull. Com.* XXXIII. (1895), p. 304.

[10] See note 12, p. 23.

[11] Cerasoli, *Bull. Com.* XXXIII. (1895), p. 305.

[12] *Ibidem.* p. 306.

[13] *Storia degli Scavi*, ii. p. 13.

[14] See *C.I.L.* vi. 894. *Accursio, Ambros. D.* 420, f. 31.

[15] *Uffizi A.* 2067, 2068: not noted in *C.I.L.*

[16] *Uffizi A.* 384–391 = Bartoli, *Uff.* II. cxii–cxiv.: His base-lines, however, are not now to be identified.

[17] Cf. Töbelmann, *R. Gebälke*, on the Arch of Augustus, p. 14.

[18] Cf. *Bull. Com.* 1882, pp. 152–154. Lanciani's transcription of Peruzzi's notes is faulty; and the reductions of his scales to metric equivalents, wrong in themselves, rest upon wrong equations.

[19] For these measurements see Hülsen, *Röm. Mitt.*, IX. (1894), p. 329, based on Sangallo the elder. 1 *R. palmo* = ·233 *metre*; 75 *passi* = 375 *piedi R.* = 50 *canne* = 500 *palmi R.*

this time began the idea of the existence of twelve doors, one in each niche behind the external wall.

Two other important architects of the Renaissance, Antonio da Sangallo *il giovane* (1485–1546), and his contemporary, Gianbattista da Sangallo, studied[1] the monument. The latter was able to draw part of a Doric cornice from the church of S. Rocco (not the same as Peruzzi's, and hardly from the exterior of the building, although certainly of Augustan type), the obelisk, and, in collaboration with Antonio, a sketch-plan of the Mausoleum. This plan is no more than a hasty draft, without a scale, and it shows no outer wall. But it is very important, for it gives the last clear picture of the building before the defacements of the Soderini, which seem to have made it impossible for seventeenth-century students to understand the structure. Valuable, too, is the independent sketch-plan of the interior by Antonio, which confirms that of Gianbattista, and corroborates the present version. In fact, these architects had at their disposal and in better condition most of the material now available, but they do not seem to have used or studied in full the decorative features recorded by Peruzzi. Antonio, however, studied the obelisk, and designed a new base to carry it.

Stripping of the masonry was still continuing in 1543, as Fulvius[2] notes, in the words *ubi multa ex profunda tellure marmora erui vidimus* (perhaps including[3] *C.I.L.* vi. 8483): in 1546 the Soderini had acquired[4] the building, and secured rights of excavation three years later. They proceeded to lay out a hanging garden within the innermost shell of the structure, and ornamented it with a collection of sculptured stones[5] from various sources. A very small view of what looks like an early state of the garden appears in Van Cleef's panorama[6] of 1550, and Étienne du Pérac (1575) shows[7] the later developments, since when the original structure has suffered surprisingly little, although its aspect has often changed. The garden remained until 1780, when the Marchese Vivaldi-Armentieri built[8] there a wooden bull-ring;[9] accordingly most views of the seventeenth and eighteenth centuries either resemble or definitely copy du Pérac's; among them may be mentioned Maggi's (1618),[10] Giovannoli Alò's (1619)[11] and Bartoli's[12] (1727). This school of engravers also began the type of restoration which shows the Mausoleum in four or five approximately equal tiers, a tradition which seems to be based upon the fancies of Pirro Ligorio, and takes no account of evidence from the actual remains.

Bartoli also produced[13] a measured plan by P. A. Bufalini (see Pl. X.), and a view of the entrance to the building. Those measurements in the former which can still be checked turn out approximately right, with a maximum error of four feet, causing a misplacement of the semicircular chambers behind the external wall. The view of the entrance is accurate and good, and especially important because it shows foundations of the doorway, possibly then existing—a simple and narrow entrance, without any attached portico. Piranesi's plan and drawing of the exterior are

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[1] Bartoli, *Uff.* IV., cccxxx., cccxxvi., cccxxiv., III., ccxli., ccxxxvi., ccxxxi., ccxii., cclvii.

[2] *C.I.L.* vi. 886.

[3] Unless Venuti, ii. p. 57, cap. 3, is more correct; see *C.I.L. ad loc.*

[4] *Bull. Com.* XXXIII. (1895), pp. 306–7: possession in 1546 is proved by *Arch. di Stat. R., Investig. 25, fol.* 73, June 6, 1546.

[5] See Aldroandi, *Statue di Roma*, 1588, pp. 198–201: cf. *Storia degli Scavi*, iii. p. 241, and *Album de Pierre Jacques*, 1575, p. 57.

[6] Bartoli, *Cento Vedute*, Tav. A, p. 20.

[7] *Vestigii*, 36. The original sketch is *Uff. A.* 1750 = Egger, *R. Veduten*, 7, assigned by Egger to an Anonymus.

[8] *Diario di Roma*, July 3, 1780, No. 570.

[9] There are preserved in the Palazzo Correa two engravings showing this building; and Dr. Ashby possesses another, showing its conversion to more permanent form. Uggeri, *Journées Pittoresques*, xii. p. 63, note *a*, mentions another.

[10] Maggi, *Edif. et Ruin. R.* 1618.

[11] Giovannoli Alò, i. 40.

[12] Bartoli, *Antichi Sepolcri*, 1727, pl. 72.

[13] *Ibidem*, pl. 71.

both[1] in error, and give no new information. His annotated section shows for the last time and usefully identifies a small dove-cote-like mass, illustrated badly by every view later than Van Cleef's, as the last surviving pier of the superstructure. Otherwise the traces of internal walls shown look like an imaginary extension of the buttress-walls between the first and second circles, added to fit the restoration. And we may fitly close the series with Uggeri's plan,[2] a symmetrical elaboration of fact and fiction, upon which the descriptions of the nineteenth century (notably Canina's[3] worthless sections, plan and elevation), base many exaggerations. Certainly further facts were not available under ordinary conditions, and no note was taken when the foundations of the Anfiteatro Correa were laid in 1796,[4] or when it, in turn, was replaced by the modern Augusteo Concert Hall in 1897. The latter building at least must have involved the removal of much ancient material (see Pl. XII.).

In 1869 excavations were undertaken by J. Parker, but their results are difficult to ascertain. Parker thought[5] that he had reached the central tomb-chamber of Augustus by pursuing the entrance-passage, and it is clear that he removed much debris from the passage itself. On the other hand, it is quite certain that he penetrated no further towards the interior than is now possible, for the way is blocked by Roman concrete, bearing the impressions of a travertine facing. So he cannot have reached the central chamber, which can hardly have been used for cellars in his day, as he states. Two years later the outer wall was discovered[6] in the entrance of the Palazzo Correa, but was not properly marked on any plan; and fortunately the top of it was uncovered again in 1926, during alterations to the present entrance to the concert-hall from the Via dei Pontefici. It was 3·75 metres thick, and is marked in position on the plan (Pl. IX.). In 1871 it was recorded that its facing was of *opus reticulatum*, as might be expected; but it was impossible to verify this in 1926.

II. The Actual State.

The literary sources leave no doubt upon the position of the monument or upon its identity with the remains now under discussion. They lead us to expect a large tomb, provided with magnificent accommodation for the Imperial family and with much space for their dependents. But of these tomb-chambers none is now (1926) accessible. We are met (Pls. IX., X.) by a large unexplored core, bounded by a circular reticulate wall and surrounded by a corridor, only reached by a narrow and high entrance-passage through three huge concentric walls, linked together by a remarkable system of buttressing. Even of the said corridor few traces exist. On the left of the entrance it is blocked by a mass of fallen concrete and other debris, on the right by indiscriminate rubble. Elsewhere its walls appear only once in a cellar on the north-west, where the inner one leans against the outer at an angle of sixty degrees. This collapse, however, was caused by strain from inside, and not by the weight of the passage-vault, which was carried on two reticulate walls, each 2′ 8″ wide, and built against a wall already properly faced, which appears immediately to the right of the entrance-passage, and twice in the cellar. These facts prove that there was a passage right round the building; and the levels show that to the west there was no rise. The ascent, then, will have been on the east; since an ascent somewhere is postulated by the height of the building. And separate walls were built to support the vault in order that its gradual rise might not interrupt the horizontal courses of the main wall.

[1] Piranesi; plan, *Antichità*, ii. Pl. LXI.: drawing, *Campo Marzio*, xxi.; section, *Antichità*, ii., Pl. LXII.

[2] Uggeri, 1814, xii. Pl. XIV.

[3] Canina, *Edifici*, iv. 283.

[4] Cancellieri, *Il Mercato*, p. 66.

[5] Parker, *Archaeology of Rome*, vol. vi. p. 8.

[6] Rosa, *Relazione delle scoperte arch.* 1871–2, p. 73. Lanciani, *F.U.R.* viii., marks the wall as straight.

The entrance-passage was lined with travertine blocks, in 2′ 3″ to 2′ 6″ courses, of which the impressions on the concrete remain (Pl. XII.). And impressions show that the vault was centred on wood, although the roof has been so much damaged at the junction with the corridor to left and right that it is only possible to say that an intersecting barrel-vault was its probable arrangement. We do know, however, that the back of

The buttressing-system (Pls. X., XVII., Fig. 2) outside the corridor is formed by two belts of once inaccessible chambers, unprovided with doors. The inner belt has twelve four-sided compartments separated by eight-foot radiating walls. The outer belt consists primarily of twelve semicircular niches, which form great buttresses, designed to receive the thrust of the radial walls just mentioned. On top of these buttresses are narrow

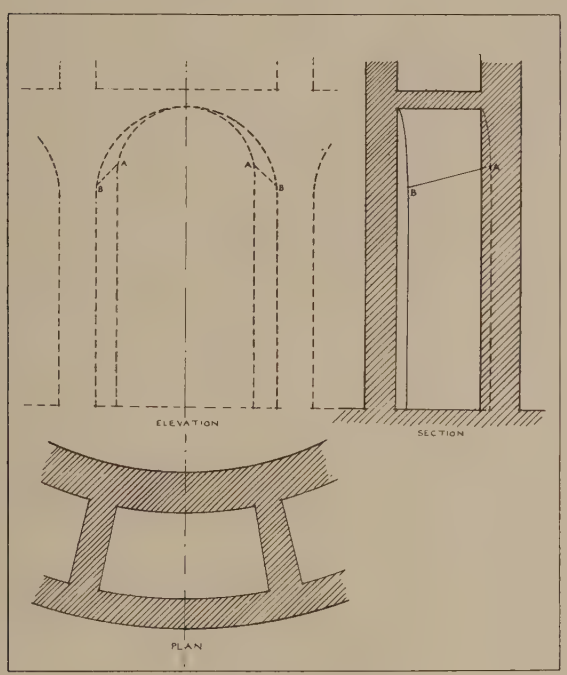

Fig. 1. Wedge-Shaped Chambers.

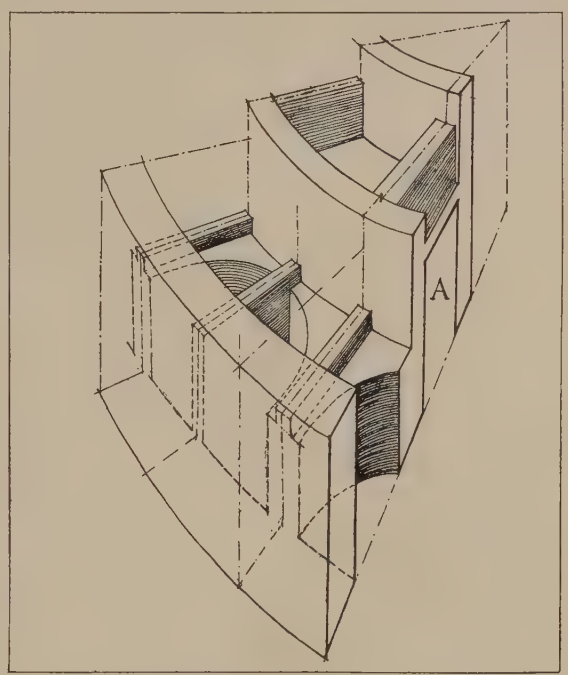

Fig. 2. Transmission of Stress: (A is one of the wedge-shaped chambers).

the entrance-passage at this point was faced with travertine blocks, for the impressions remain, and disprove conclusively Parker's statement[1] that the passage led straight into a central chamber. A small chamber inserted above the passage, as in the tomb of Caecilia Metella, reconciled its top with that of the main buttressing-system on each side of it. Of the main door nothing now remains, and it will therefore be dealt with below (see p. 30).

radial ribs (Pl. XVI., and Fig. 2), and between these are similar intermediate rib-walls, bisecting the niches and thus producing twenty-four quadrants; but it will be shown below that these minor ribs are not primarily concerned with the distribution of outward thrust, which is, in fact, brought to rest by a huge outer wall, 17 feet thick, described in detail below. The different elements in the system are thus planned quite symmetrically, and the entrance to the interior was contrived by

[1] Parker, *Archaeology of Rome*, vi. p. 8.

widening and dividing one main radial buttress, a process which involved cutting off eight feet from each compartment at its side (Pl. X.).

We may now return to the inner circle of wedge-shaped chambers, most of which still have a barrel-vault. The crown of the vault was kept horizontal, and as the room widened and the span of the vault increased, the line of the springing descended (Fig. 1). Thus an excellent raking buttress is provided by the walls separating the chambers, which safely transmit stress from the interior (Fig. 2). Evidently these chambers were centred upon rammed earth, for neither do the vaults show plank-impressions, nor are the walls provided with off-sets, corbels or putlog holes to carry centring. On the other hand, the undersides of the vaults are rough and uneven. So the chambers must have been filled up with earth as they were completed, and then the vault would be allowed to set upon a centring formed by the rammed mass. Such a filling, too, accounts for the splendid preservation of the reticulate facing of the walls, for, being covered, the earth remained dry, and absorbed any dampness tending to destroy the face of the tufa cubes. The walls themselves were carefully laid in belts, but a precisely true face was not attained from belt to belt, since they were not meant to be seen. That is to say, each portion was well and truly laid in its wooden shuttering, but the shutters were not carefully adjusted in relation to what had already been built.

The outer semicircles (Pl. X., Fig. 2), which gathered intermediate thrusts into the main radial system of buttresses, did not reach so high. Instead, they ended with unvaulted tops, 18 feet below the crown of the vaulting of the wedge-shaped chambers, as is shown by the level top of the rough surface marking where their concrete core bonded into the outer wall of the wedge-shaped chambers. Above this level top projected the radial ribs that divide the semi-circles into quadrants. These served two purposes. They split up the mass still further—a wise precaution, for, as has been noted, these compartments were unvaulted, and therefore their earth-filling must have undergone great changes in weight. But their main purpose was rather to give additional stability to the upper part of the outer wall, which rose to a great height and required such support in spite of its vast thickness. And there were similar ribs on top of the main buttresses formed by the large semicircular niches (Pl. X., Fig. 2). Meanwhile it should be noted that a careful examination of all the compartments described has reduced to an absurdity any restoration of the Mausoleum based on the assumption that they were tomb-chambers; on the other hand, it provides an exceptional insight into the articulation of a large Roman tumulus.

The outer wall was discovered[1] in 1871, while relaying the foundation of the east wall of the entrance to the Palazzo Correa, and was reported as 3·75 metres thick (12′ 2″): this dimension was confirmed by R. A. Cordingley in 1926, when the top of the wall was uncovered during further alterations in the same entrance, as shown on the plan (Pl. X.). In 1926, however, only the top of the structure was visible, while in 1872 Rosa was able to report that it was faced with *opus reticulatum;* this must have belonged to the inner face of the concrete, for the outer face rested against travertine *opus quadratum* five *piedi romani* thick (4′ 9½″), as recorded by Baldassare Peruzzi.[2] Combining this information we arrive at the true thickness of the wall, that is, 16′ 11½″, which hints that it was very high. Further information from Peruzzi, dealt with in the next section, enables us to estimate this height with a pleasantly small margin of error.

[1] Rosa, *Relazione delle scoperte arch.* 1871–2, p. 73. Gardthausen, *Röm. Mitt.*, XXXVI.–XXXVII. (1921–2), p. 140, mistakes this for a precinct wall.

[2] Peruzzi = Bartoli, *Uff.* II. cxii. = *Uff. Arch.* 391 *recto.*

The two obelisks flanking the entrance to the building were a late addition, as Ammianus Marcellinus notes,[1] and therefore are not considered or described here. They were much (perhaps overmuch) studied by architects, and were re-erected, the best known by Sixtus V in 1587 at S. Maria Maggiore, the other by Pius VI in 1782 on the Quirinal.

III. The Restoration.

To gain the most probable picture of the building in its original state it is proper to use the two types of evidence so far described, and, failing these, analogies may give us a clue. Without drawing much upon the last type of evidence we can reconstruct the outer wall. A carefully-measured drawing thereof, now preserved at Florence,[2] was made by Peruzzi in 1519. This shows a wall of travertine *opus quadratum*, arranged in headers and stretchers, and standing upon a huge base mould, 5′ 10″ high, of which Peruzzi took detailed measurements, employed here in drawing (Plate XV.) to modern scales.[3] He notes that the structure rose to the height of 40 *palmi romani* (29 feet), and shows it surmounted by a simple oversailing course of flat slabs, of 1′ 11″ in depth and projection. But this is properly a string, as may be seen from parallels,[4] and shows quite clearly that the wall in its original state must have risen higher than Peruzzi indicates. Two other points demonstrate the same thing. Firstly, at this height the wall does not screen the first internal ring-wall, which, if open to view, must have been faced. There is, however, no sign whatever of any facing, and the wall, therefore, must have been screened by earth, contained in turn by a high outer wall, higher than 29 feet. Secondly, if the wall stopped at this height it could not, by reason of proportion, have been adorned by a full Doric entablature 7′ 3″ high, of which Peruzzi also measured [5] details. This, then, would have to belong to the next ring; but the height of this shows that there too it would be out of place, for the same reason. So it is certain that the outer wall rose high, and we can gauge its height by the Doric proportion, which is 1 (entablature): 4 (wall), or, as a minimum, 1 : $3\frac{1}{2}$. The former ratio is, however, too high for a wall which is practically free-standing and which has to balance oblique thrusts at its base, while the latter is too low for good appearance. A height between the two has therefore been chosen, governed by further evidence from the interior.[6] The resulting whole amply justifies Strabo's [7] epithet, ὑψηλός. The entablature itself resembles [8] that of the Theatre of Marcellus, completed in 13 or 11 B.C.; the metope, drawn somewhat obscurely by Peruzzi, is apparently plain; and the upper members of the cornice are unusually bold, as is dictated by the scale of the structure. The same condition imposed a comparatively slight projection with a narrow soffit, upon which two panels, each enclosing a rosette, cover the width of one metope, as Peruzzi states, and it no doubt struck him as an unusual arrangement (Pl. XV.). Lastly, it should be noted that the top of the string, or oversailing course, coincides with the springing of the lowest main vaults of the building, an interesting check to Peruzzi's measurements (Pl. XIV.).

The height of most of the next stage may be partly ascertained from a study of the drawings of the Du Pérac school and Piranesi. The latter shows,[9] approximately over the small chamber

[1] See note 10, p. 23.

[2] *Uff. Arch.* 381–391.

[3] This has been attempted by Lanciani, but badly; cf. *Bull. Com.* 1882, pp. 152–4.

[4] Cf. the Forum of Augustus and the Tomb of Caecilia Metella, Rome.

[5] *Uff. Arch.* 392 = Bartoli, *Uff.* II. cxiv. (see Pl. XV.).

[6] See the end of the paragraph.

[7] Strabo, v. 236.

[8] Cf. D'Espouy, *Fragments d'Architecture Antique*, i. pl. 38, Theatre of Marcellus: Anderson and Spiers, *Arch. of Greece and Rome*, Fig. 139, Temple of Hercules at Cori—a still closer resemblance.

[9] *Antichità*, ii. Pl. LXII.

above the entrance-passage, the springing of a vault at a slightly higher level. This must have belonged to a small room into which the spiral corridor ran, after it had encircled the whole building. Above this he shows, in common with every view after Van Cleef's, a pier, which should belong to an internally-arcaded corridor for ventilating the building—a point considered more fully below. But the whole structure did not rise much higher than the ventilating pier, for the wall which carries the pier is only six feet thick; so we can add on top an appropriate thickness of earth for bedding the evergreens mentioned by Strabo, and reduce the sum of the measurements to a minimum. The resultant appearance of this stage is a low wall (Pl. XIII.), pierced by small ventilating holes, protected from the encroachments of vegetation below by a broad stone kerb.

The next and topmost stage is governed principally by the depth of earth required to grow trees. It, too, must have been reduced to a minimum, in order to lighten the load upon the vaulted chambers below. Its decoration has been treated soberly, using a simple motive, already ancient in the age of Augustus, which prepares us for the crowning feature, the bronze statue of the Emperor mentioned by Strabo. The great man is placed upon an ornate pedestal, kept wide and low, to accord with the rest of the building (Pl. XIII.).

To enter the building it was necessary to penetrate a long and high corridor, leading to the annular passage behind the main buttressing-system of the tumulus. There is now no trace of the main doorway, but analogies [1] enable us to restore it as a double door of stone, imitating bronze technique, and sealed. Bartoli showed,[2] in 1727, the foundations belonging to the doorway, and we can be sure, despite beliefs now two centuries old, that there was no portico. For a portico would have required, for its attachment to the circle, a flattening thereof, which Bartoli shows not to have existed. Also, it is quite out of keeping with the outward aspect of a tomb of this scale or period, and with the incidental, unobtrusive design of the entrance. Above the door has been arranged a flat arch, surmounted by a lunette, the latter providing the inlet for ventilation, and coinciding with the vault inside the passage, which still shows impressions of boards (not plug-holes or nail-holes), suggesting that the ceiling was stuccoed. Impressions in the concrete confirm the tradition [3] that the sides were faced with travertine; and there is similar evidence for the facing of the concentrically-curved back-wall, which forms as much part of the annular passage as of the chamber by which it was reached. The thickness of this facing can be restored with certainty. Details of the decoration are less sure. Somewhere was an inscription, as an 'A' preserved on a travertine block shows. And part of an acanthus, carved upon a walling-stone [4] of normal size, proves, with the inscription, that the travertine was not covered with marble. There also exist two voussoirs for a flat arch, each with the same vertical dimension (Pl. XV.).[5] They seem to have formed a somewhat asymmetrical three-piece arch, above an aperture with a maximum width of five feet, but much more probably as small as three feet six inches. The size of the opening and the irregularity of the voussoir joints also show it to have occupied some obscure position, without doubt dictated by the needs of ventilation described below. Before passing from this part of the building, it should be noted once more that the evidence from the back-wall puts out of court all restorations showing a direct entrance into the tomb-chamber at ground-level, which Parker thought he had discovered.

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[1] Cf. Canina, *Edifici*, vi. xxx. A fine example of an actual bronze and stone door is preserved in the State Museum, Constantinople.

[2] Bartoli, *Antichi Sepolcri*, Pl. 73 (numbered 72 by mistake).

[3] Cf. Piranesi, *Ant.* II. lxii., and our Plate XII.

[4] These stones are still preserved in the entrance-passage.

[5] This seems to show that they belong to one and the same arch. Nor does ventilation demand a pair (see final paragraph).

Some clue to the arrangement of the tomb-chambers is provided (Pls. X., XVII.) by that of the annular passage. This is faced with *opus reticulatum*, which may have been covered with stucco or marble, and there is no doubt that it served two levels. A low level is proved by the fact that on the north-western side, between the collapsed walls already described, the passage-floor, allowing for slight accumulation of uncleared debris, is on the same level as the entrance-passage. The western branch, therefore, led by a half-circle to a chamber at ground-level, entered, as symmetry demands, from the north. On the other hand, the eastern branch must have risen, since—apart from the great height of the tomb—the peculiar construction of the passage-wall, already mentioned, denotes a rise somewhere. A gentle incline, by a complete circle, brings us to a chamber behind the tiny room above the entrance. The latter room served as an access-passage to two narrow service-stairs, 1′ 9″ wide, leading to the upper storeys (Pls. IX., X., XIV., XVI.). Exactly on the centre-line of the second ring-wall, the west side of the barrel-vault is broken by a lunette; and on the east the form of a modern window-niche shows that there was a second stair there and gives its width. It is noteworthy that these stairs are copied[1] in Hadrian's Mausoleum across the Tiber.

The general structure of the building imposes certain definite conditions upon the form taken by the tomb-chambers. It is clear, for example, that the lower one must have followed the upper in general outline, in order to support adequately not only the room above it, but the earthen mound and statue which crowned the whole tumulus. Further, the pressure of the mound must have dictated that the span of the upper chamber should be small, eliminating the possibility of vaulting the whole space contained by the small ring-wall in a single span. Yet the tomb—whatever the original intentions of its founder[2]—eventually contained a large number of dead; while the ventilation-scheme, based upon an annular shaft, demands proper connection between the outer ring and the inner compartments. So the form demanded is one which not only carries on towards the centre the radial system worked out in the buttresses beyond the annular corridor, but also gives plenty of room to the dead and balances the stress without. An arrangement combining these features may be found in an upper circular room supplied with four axial side-chambers. In plan this continues the lines of the entrance-chamber and accords well with the buttresses; while the side-chambers provide sufficient space and support, and offer simple means of securing the circulation of air inside the tomb (Pls. XIV., XVI.).

Below such an upper room as this, however, a room provided with large side-chambers is impracticable, chiefly because the thickening of the wall supporting the upper side-chambers would give unfeasible proportions to lower compartments of the same kind. Also, solid earth is, at this stage, a much better buttress than radial walls, since its weight exerts less and less outward pressure as the floor-level is approached. Finally, the circular floor of the upper chamber requires simple and solid support. So there may be restored a strong, cruciform, cross-vaulted room, supplied with a small recess at the end of three arms, and a door through the fourth (Pls. XIV., XVII.). The whole system here described has many parallels in later tombs, a striking instance[3] being provided by the tomb of Priscilla. Here it builds up so well from the available evidence that one would fain claim it as true.

The decoration of these chambers as restored depends entirely upon analogy, if we except Agrippina's ash-cist,[4] and the urn found near

[1] See *J.R.S.* XV. (1925), Pl. XVII.

[2] It is clear that in 28 B.C. Augustus can hardly have had the same ideas about the scope of the tomb as in A.D. 14.

[3] Cf. Rivoira, *Roman Architecture*, Figs. 8, 9, 14, 277.

[4] *C.I.L.* vi. 886.

S. Carlo in 1777. The Leningrad sarcophagus [1] has been entirely excluded, since it is very doubtful whether it came from the Mausoleum at all. So we may restore (Pl. XIV.) simple vaults, with plain or minutely figured stuccoes. On the walls might be expected a marble facing, a treatment no doubt continued in the pavement. Augustus has been placed in the smaller chamber, for it may be assumed that the difference in size of these, though no doubt primarily related to the main division of the Roman household into many slaves and few free folk, may also have connoted a separation of the immediate succession from the less distinguished members of the household. It would at least be in the Roman spirit to devise within the tomb as delicate an official grading as ever operated on the Palatine.

We have already noted that the outside of the tomb was extremely plain. But there is reason to suppose that in time its base near the plinth became covered with detailed honorary inscriptions. In 1519 one [2] of these, in honour of Gaius Caesar, was discovered *in situ* on the external wall behind S. Rocco, and noted by Peruzzi. And fragments of another [3] associated with buildings belonging to the Colonnas, have been thought to come from the same source. Above the doorway we have placed a conjectural inscription, meant to be in keeping with Strabo's [4] statement of the scope of the tomb. These inscribed tablets were, it seems, of marble; but Peruzzi's record, and the evidence from the entrance-passage, make it certain that the whole tomb was faced in travertine, and that Strabo's λευκὸς λίθος must be translated thus.[5] To cover so large a building with marble (as implied by the alternative translation) probably would have exhausted the resources even of Augustus.

It is uncertain what form of decoration existed outside the door, if we omit the later obelisks. For there is no warrant for the statement that the bronze records of Augustus' achievements flanked the entrance; we only know that they were set up in front of it.[6] On the other hand, stone bollards with attachments for chains, found at S. Rocco and recorded [7] by Peruzzi, allow us to think that the whole building was enclosed by a semi-public precinct, no doubt forming part of the Park behind it, which Augustus gave [8] to the Roman people. And chance discoveries enable us to give a certain restoration of the street-plan surrounding and intersecting the park (Pl. XVIII.).[9] This is useful as showing that the Mausoleum was flanked by space sufficient for another building of about the same dimensions, which is known, from inscriptions [10] discovered near S. Carlo in 1777, to be the *ustrinum*, a fact confirmed by Strabo, who notes that the building itself was of white stone, and that its iron-railed enclosure was circular. So we may restore, with fair confidence,[11] a pyre-base (Pl. XIX.), with accessory buildings encircling it, covering the same area as the Mausoleum and serving to balance it when surmounted by a pyre. The

[1] This sarcophagus has the following history. Described by Stephani, *A-Sammlung zu Pawlowsk*, p. 24, No. 42. It passed to the Lyde-Brown collection (Catalogue of 1779, No. 1) between 1768 and 1779, at the time of the dispersal of the Soderini collection, since it is not mentioned in the catalogue of 1768. The Soderini Collection was formed from various sources as early as 1567 (cf. Lanciani, *Storia degli Scavi*, ii. p. 15), but the sarcophagus did not form part of it in 1588, when Aldroandi compiled his list. So its provenience is very doubtful. Finally, I am assured by Mrs. Strong and Miss J. Toynbee (who is about to publish it in the *J.R.S.*) that its style is Hadrianic. An illustration is in *Codex Pighianus Berol.* 361. Doubtless the legend, '*fu trovato nel Mausoleo*' served rather to enhance its price at the Soderini sale, than to embody the truth.

[2] *C.I.L.* vi. 894. Peruzzi = *Uff. Arch.* 2067, 2068.

[3] *C.I.L.* vi. 895.

[4] Strabo, v. 236.

[5] This, therefore, invalidates Rivoira's assertion, that the Mausoleum was the first large tomb to have a marble-faced exterior.

[6] Suet. *Vit. Aug.* 101.

[7] Peruzzi = *Uff. Arch.* 394 = Bartoli, *Uff.* II. cxi. Fig. 198.

[8] Suet. *Vit. Aug.* 100.

[9] Lanciani, *F.U.R.* viii.

[10] *C.I.L.* vi. 888–893.

[11] Lanciani's *ustrinum* is, as Hülsen has noted, pure conjecture, based on the *crematorium* of the Antonines at Monte Citorio. It appears on our Pl. XVIII., but not on XIX.

street-plan also demonstrates the truth of an old tradition enshrined in a church-name. S. Maria *in porta Paradisi* lies at the west end of the central street, opposite an important Tiber-ferry, and no doubt reminded those who entered the main gates of the Park, or 'paradise,' to ascribe its glory to a God who had superseded Augustus.

In designing the park itself, described by Strabo as a wonderfully-planned grove (Pl. XIX.), some play has been given to fancy. But readers of Varro's description of contemporary gardens will recognise some of the features therein; and the elaboration of detail has some warrant in Strabo's words, which must rank as high praise in the golden age of Roman formal gardening. Nevertheless, the details are not meant to be taken as corresponding to known facts, for exact knowledge fails us when we reach the groves. Their main purpose in the drawings is to throw the buildings into sharper relief, and to afford a glimpse of what may have been.

IV. The Structure and its Execution.

A study of the details so far described makes possible a broader consideration of the whole design. The central chambers, contained by the annular corridor, may be eliminated from this, except in so far as they stand for a central thrust, not fundamentally affected by the form which they took. The importance of the remainder is great, for it represents the main lines upon which such a building was laid down, supplying just the evidence that is to seek in the Mausoleum of Hadrian.[1] Above all, it forms the link between that structure and the tumuli of the Republican or Etruscan ages, and provides a solution of a difficult problem, that is, to fit large tomb-chambers into a retained earthen mound.

It is easy to see (Pl. X.) that the plan was worked out as a series of concentric walls, which (excepting the outer wall) increased in thickness as they approached the centre, and were intersected by radial walls forming buttresses and dividing the stress. This was a simple but effective scheme, admirably calculated to deal with oblique thrusts of a different kind from those of an amphitheatre, which are spread round the circumference, and do not come from the centre. Had the designer, in fact, thought more of the amphitheatre, he might have saved himself from making an unfortunate mistake. In order to reach the central chambers he did not make his entry through any of the compartments between the buttresses,[2] but bisected a buttress itself, reducing the adjacent chambers in size, and so destroying the regularity of support; and he cut off the central thrust still further from the buttress meant to carry it (Pl. X.) by the room at the end of the corridor (subdivided in height by a floor of no structural importance). A further but unavoidable defect lay in the annular corridor, which (rising to right, and level to left) introduced a fatal irregularity into a scheme which depended upon essentially regular design for its stability. We know just enough, however, to be sure that the constructors recognised the weakness inherent in this part of the building. They made the inner wall of the corridor (Pl. X.) immensely strong, to collect and spread the thrusts evenly; and they filled every unnecessary void between it and the third wall with concrete, reducing the access-passages to minimum height and width. But their fears were justified, for the north-western section of the lower corridor, where the upper corridor came nearest, may yet be seen with its inner wall collapsed against the outer. For there the total void caused by the corridors was greatest (Pl. XIV.).[3]

These are considerations which concern the

[1] Cf. S. R. Pierce, *J.R.S.* XV. (1925), Pls. XV.–XVII., where the skeleton of the building is not supplied, since it is inaccessible.

[2] The regular practice in any theatrical building.

[3] If there is any truth in the portent reported before Nero's death (Suet. *Vit. Neron.* 46), *de Mausoleo, sponte foribus patefactis, exaudita vox est nomine eum cientis*, there may have been a serious subsidence or collapse as early as A.D. 68.

general design. But to a large extent we can also regain the methods used in constructing the concrete skeleton of the building. These methods are not without general interest, since they were used elsewhere all over Rome, and have not been studied in detail, as has the facing[1] of the concrete *per se*. The whole of the concrete, as the marks on its outer surface show, was arranged in relation to the stone facing of the entrance-passage (and no doubt to that of the external wall), as is usual elsewhere. As the stones were laid, course by course, the concrete followed, and at each course there was a slight pause in the work, marked by a break in construction, eventually united by a thin layer of fine concrete, mixed very wet. The walls unfaced with large blocks of stone were built rather differently, being temporarily encased in short pieces of plank shuttering, kept firm and parallel by ties at the top and supported at the bottom by the earth-filling.[2] But such boards in themselves were not strong enough either to hold firm any great mass of wet concrete, or to prevent the fine wet mixture from trickling down on to the completed face below; and so the facing of the wall was first built behind them with great care, and held firm by a rather rich mixture of stiff cement. Then, after an interval made very short by the use of quickly-drying '*pozzolana*,' the centre of the wall was filled with concrete; for the sides were now strong enough to bear the weight, even if rammed. And, last, a fine mixture was poured in, to bind the whole mass. Good contact between the facing and core was, however, somewhat endangered[3] by this method.

The proof of the use of these methods is particularly clear in the Mausoleum, for not only does the horizontal layer of fine cement occur between the belts of concrete, but, where these are faced, in the curved chambers, the marks of the lengths of shuttering, not set to the exact curve of the room (as curves that were meant to be seen would have been set[4]), can be detected in the irregular layers of facing; and the feature occurs upon the straight walls too, but less markedly. So we can imagine the building being constructed, rising layer by layer evenly over its whole area, and the ramming of earth into the buttress-compartments taking place as each layer had hardened, thereby facilitating access to the work in progress, and serving also to hold the shuttering in position on the walls. Thus we can see that the whole rate of building must have turned upon the time it took to prepare the stone or brick-facing. And from this fact in turn it may be concluded that when fast building with a stone face was required, the stones must have been placed in position with little more than chisel-drafted margins (as at the Porta Maggiore[5]) and tooled on the spot afterwards.

An important feature of Roman mausolea was their ventilation, which prevented the accumulation of foul air within the chambers when the tomb was sealed. In that of Augustus the source of upward draught was the inlet above the door, although the door itself let in an extra supply when open (Pls.XIV., XVI.). Thence the fresh air passed into the annular corridors, either by the entrance-passage or by the chamber above it, which was reached by a small vent, as the voussoirs described above hint. Thence it reached,

[1] The brick-facing of Roman buildings has, of course, been studied thoroughly by Dr. Esther van Deman. The methods described below are dealt with by Middleton, but he confuses foundations with superstructures.

[2] Normally, when the building got too high for struts to be practicable, the shuttering was held at the bottom by a key into a putlog hole.

[3] Evidently the use of bonding-courses of large tiles, passing right through brick-faced walls, is an attempt to avoid this danger by binding in the face to the whole structure. But the bonding-course offered a new and more dangerous line of cleavage, and the practice of running the tiles right through the walls seems to have been discontinued for that reason. On buildings constructed at high speed, where care was not paid to this matter, frequent refacings became necessary.

[4] Economy in shuttering may have exacted a standard radius for apses in buildings containing many of them.

[5] Here it is plain that tooling began on the stones when in position (*e.g.* on the outer archivolt of each gate) but was not continued, perhaps for aesthetic reasons.

by three axial vents in the lower corridor, and four in the upper, the circulating gallery of twenty-four divisions at the top of the building, in turn provided with many vents to the open air through the second and third walls. The lower chamber was supplied through the lower corridor and a vent in its vault may have ensured the rise of bad air into the room above. Here a fresh supply of air arrived through the rising corridor, and probably through the arms of the chamber, and must have been evacuated by a connection through the dome with the circulating gallery. So we get a complete system, ensuring a steady circulation of air through the building at an appropriately low speed. Nor need we doubt that the main lines are correct, for we have seen above that there is evidence for the circulating gallery; analogous axial vents exist[1] in the corridor of Hadrian's Mausoleum, and the rest of the arrangement follows therefrom.[2]

[1] See *J.R.S.* XV. (1925), Pl. XVII.

[2] In conclusion both writers wish to thank Dr. Ashby for valuable suggestions, and the Conte Calori, of the Palazzo Correa, for local information and for prints and plans of parts of the building. Without the kind permission of Gr. Uff. T. Bencivenga, Direttore dell' Uff. X. del Municipio, we could not have attempted this work. Official precedent, however, prevented us from viewing the alterations inside the building which have recently (1927) taken place. If further discoveries are made, we venture to hope that our contribution will facilitate preparation of the final account.

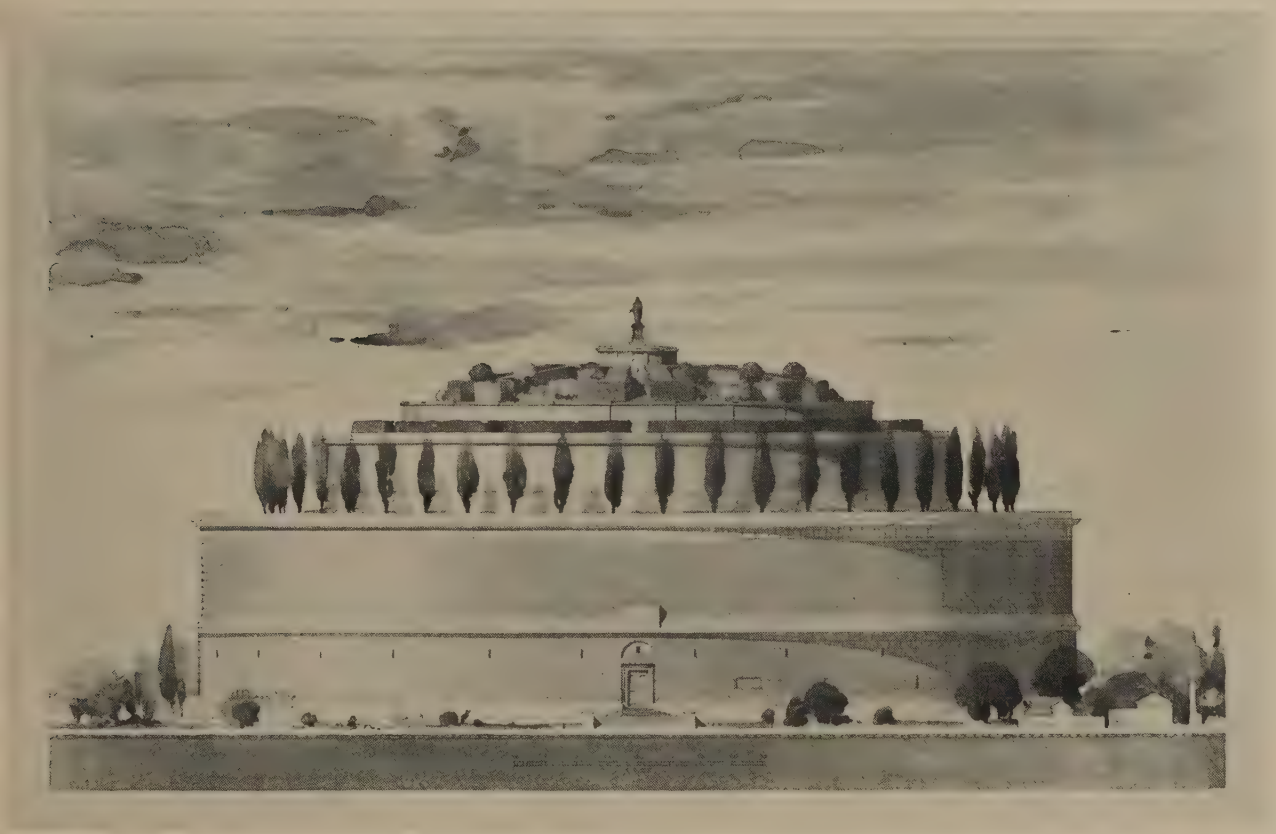
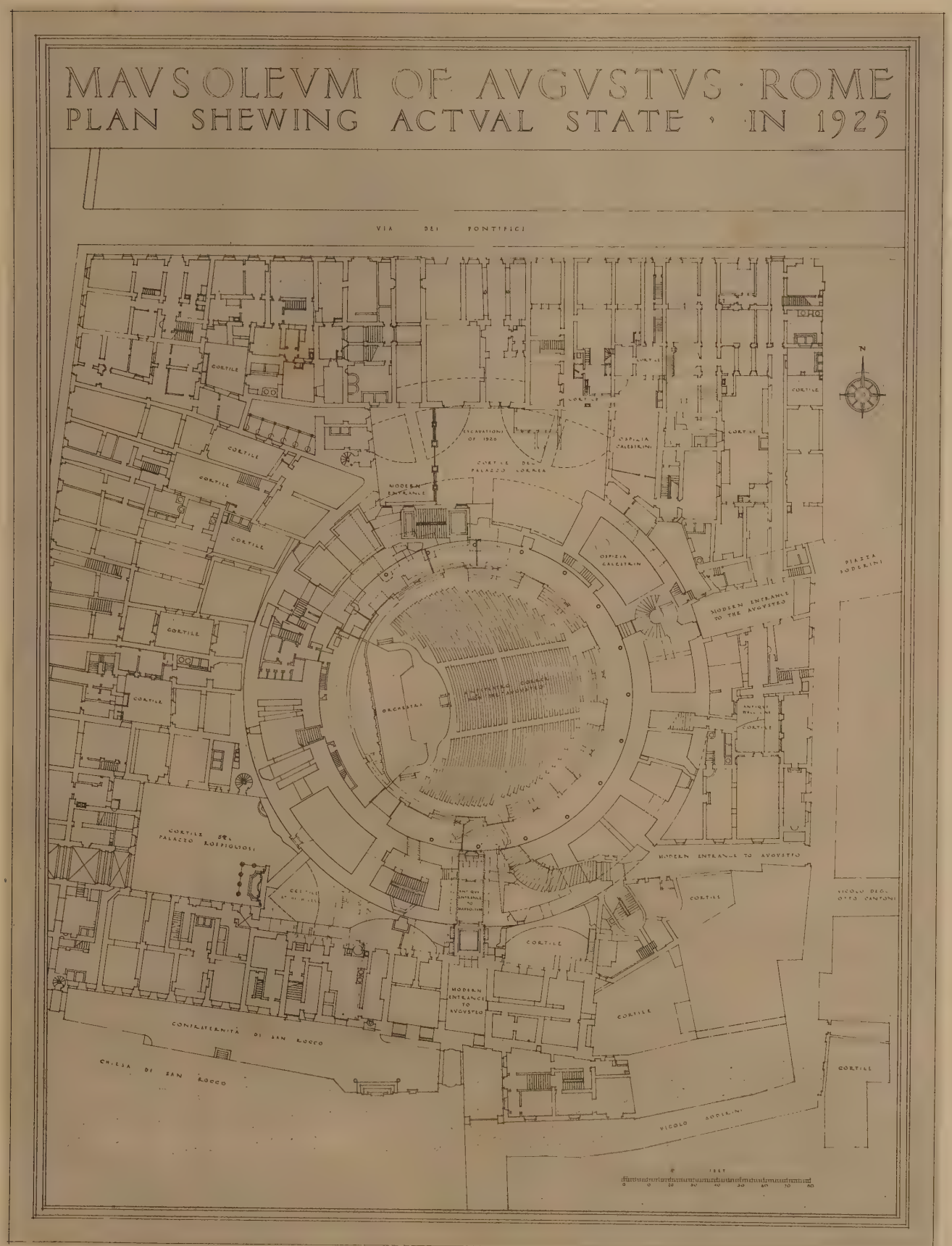


Fig. 3. The Mausoleum of Augustus seen from the South.



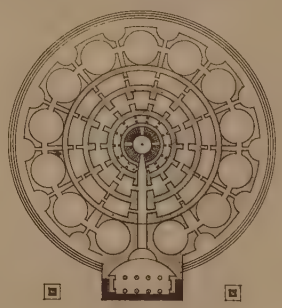
MAUSOLEUM OF AUGUSTUS

ACTUAL STATE PLAN

MAVSOLEVM OF AVGVSTVS ROME

PLAN · ACTVAL STATE · WITH LATER ERECTIONS REMOVED · COMPARED WITH PLANS TAKEN FROM PREVIOVS SVRVEYS

VGGERI



FROM "JOVRNEES PITTORESQVES" VOLVME 12. PLATE XIV

FEET

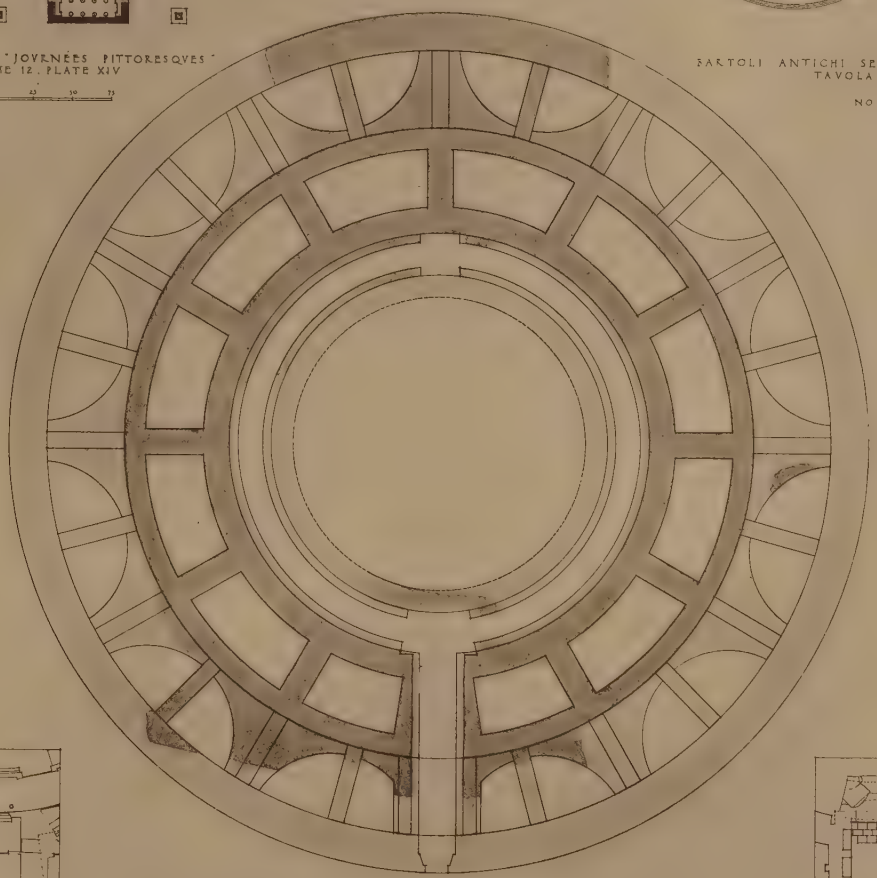
A SANGALLO THE YOVNGER

SKETCH IN THE VFFIZZI · FLORENCE ARCH 1270 RECTO · NO SCALE

BVFALINI

BARTOLI ANTICHI SEPOLCRI TAVOLA N° 71

NO SCALE



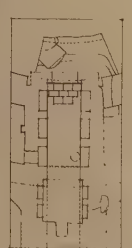
DETAIL OF CHAMBER OVER ANTIQVE ENTRANCE

ANTIQVE
MODERN

FEET

ACTVAL STATE

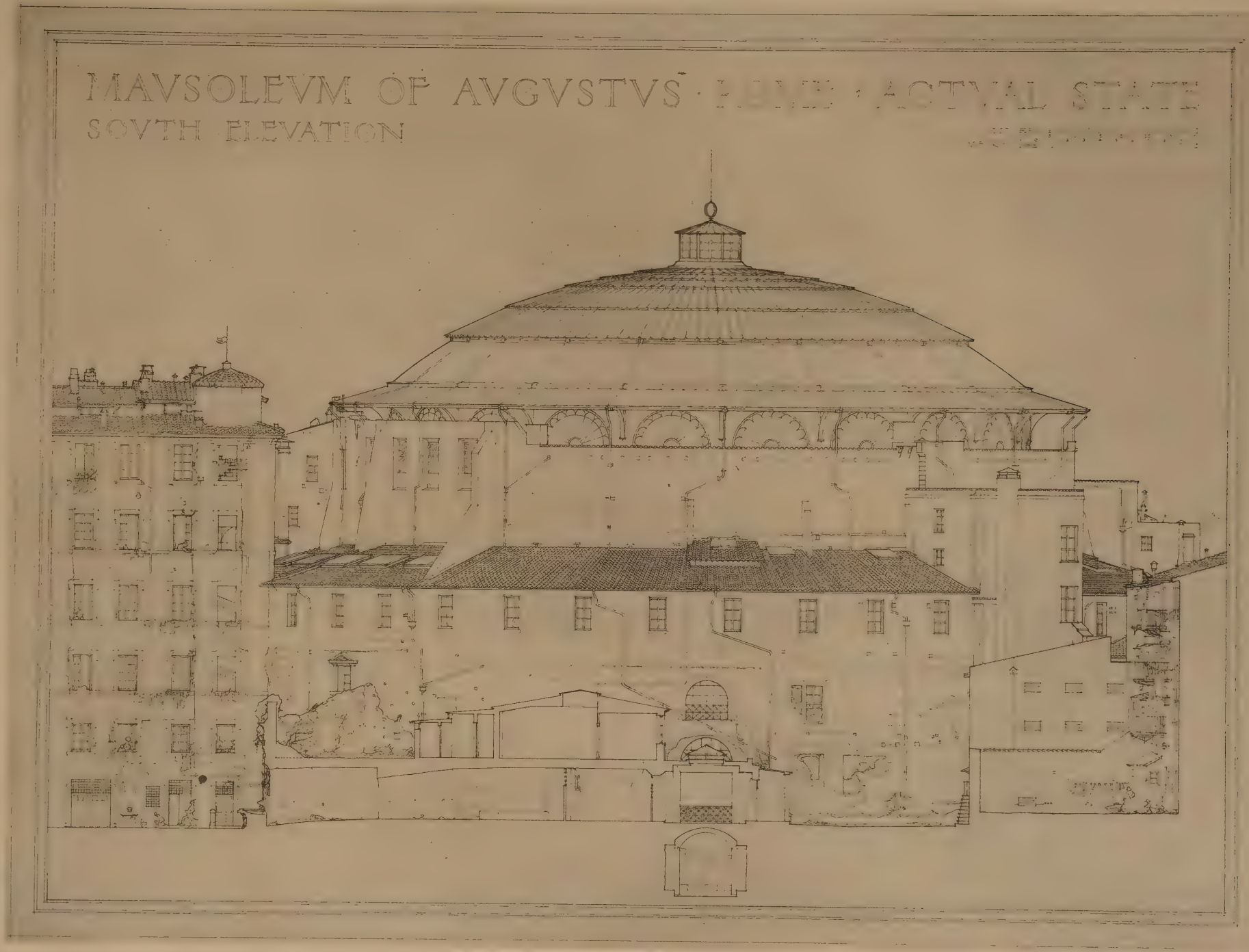
DETAIL AT ORIGINAL ENTRANCE LEVEL



ANTIQVE
MODERN

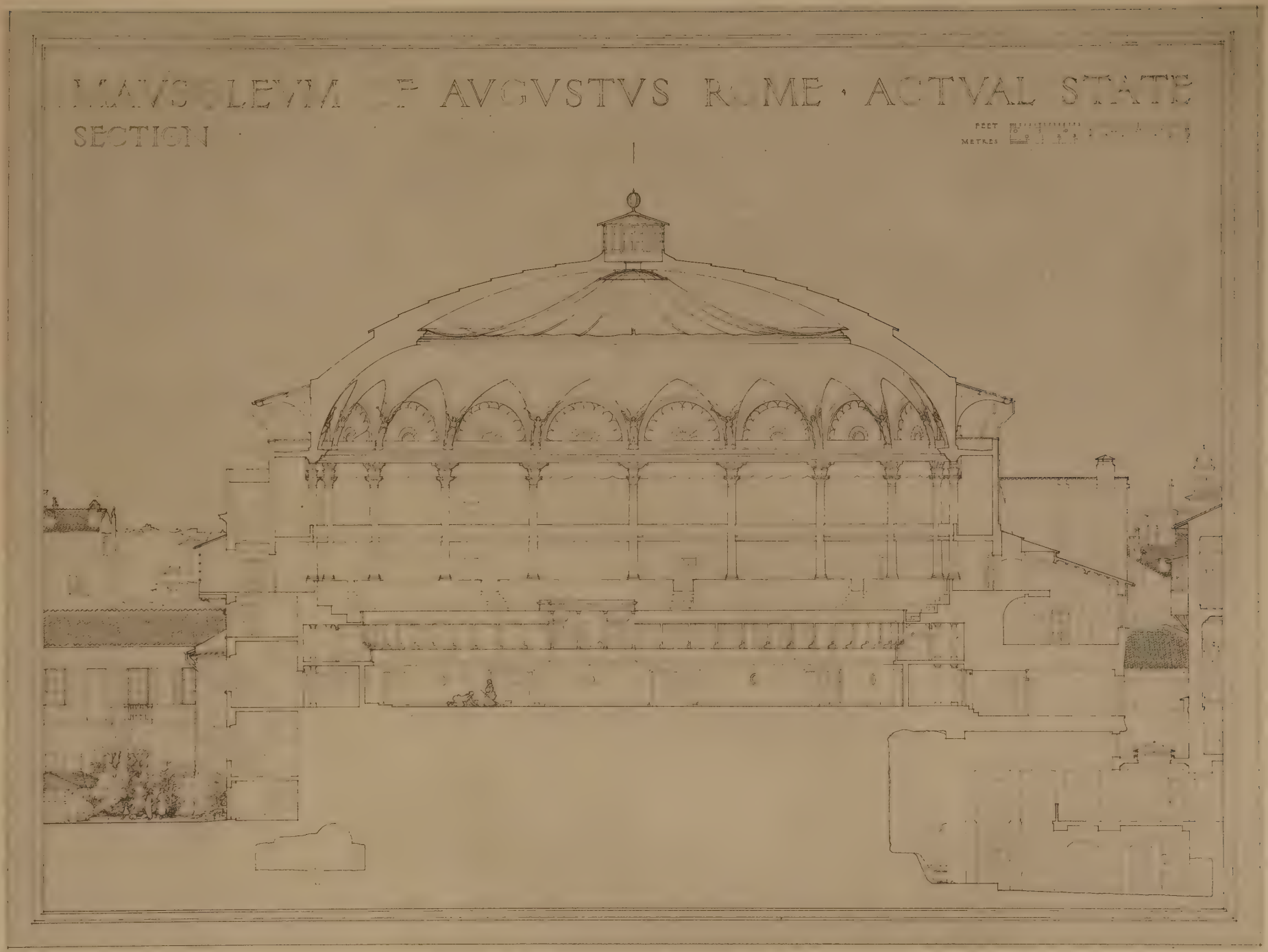
MAUSOLEUM OF AUGUSTUS

ACTUAL STATE PLAN, EXTRACTED AND COMPARED WITH PLANS TAKEN FROM EARLIER SURVEYS



MAUSOLEUM OF AUGUSTUS
ACTUAL STATE, SOUTH ELEVATION

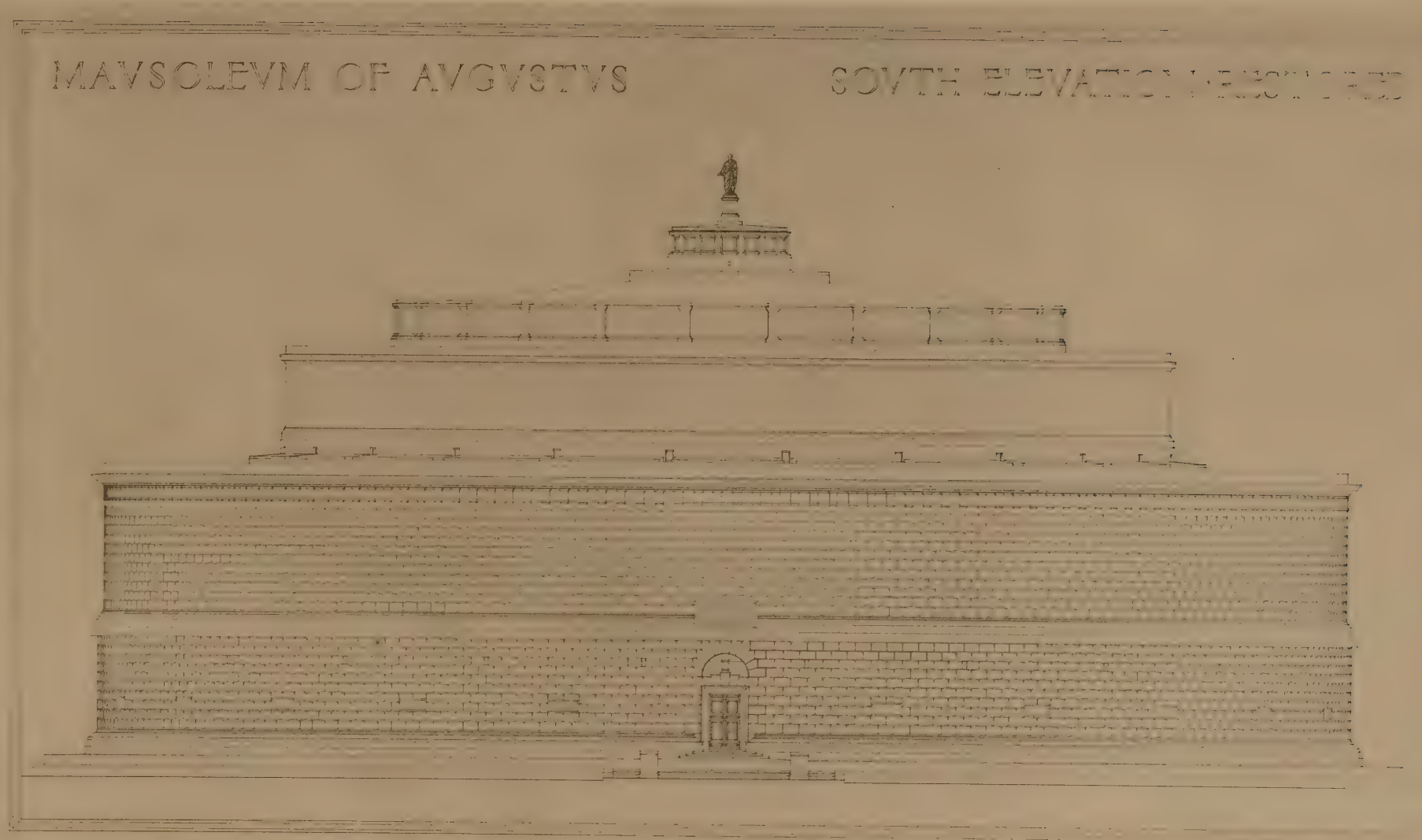
PLATE XI



MAUSOLEUM OF AUGUSTUS

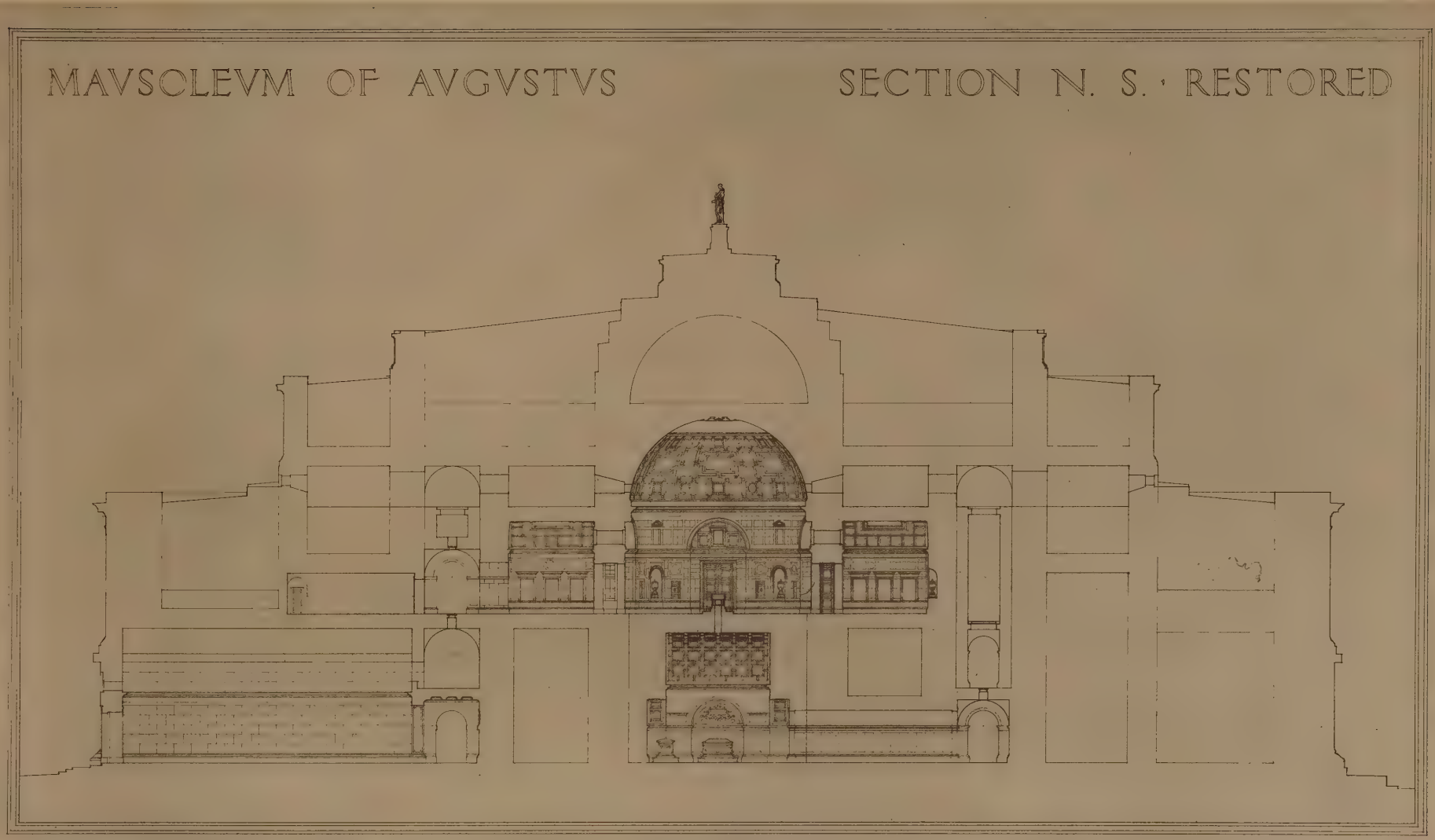
ACTUAL STATE, SECTION NORTH TO SOUTH

PLATE XII



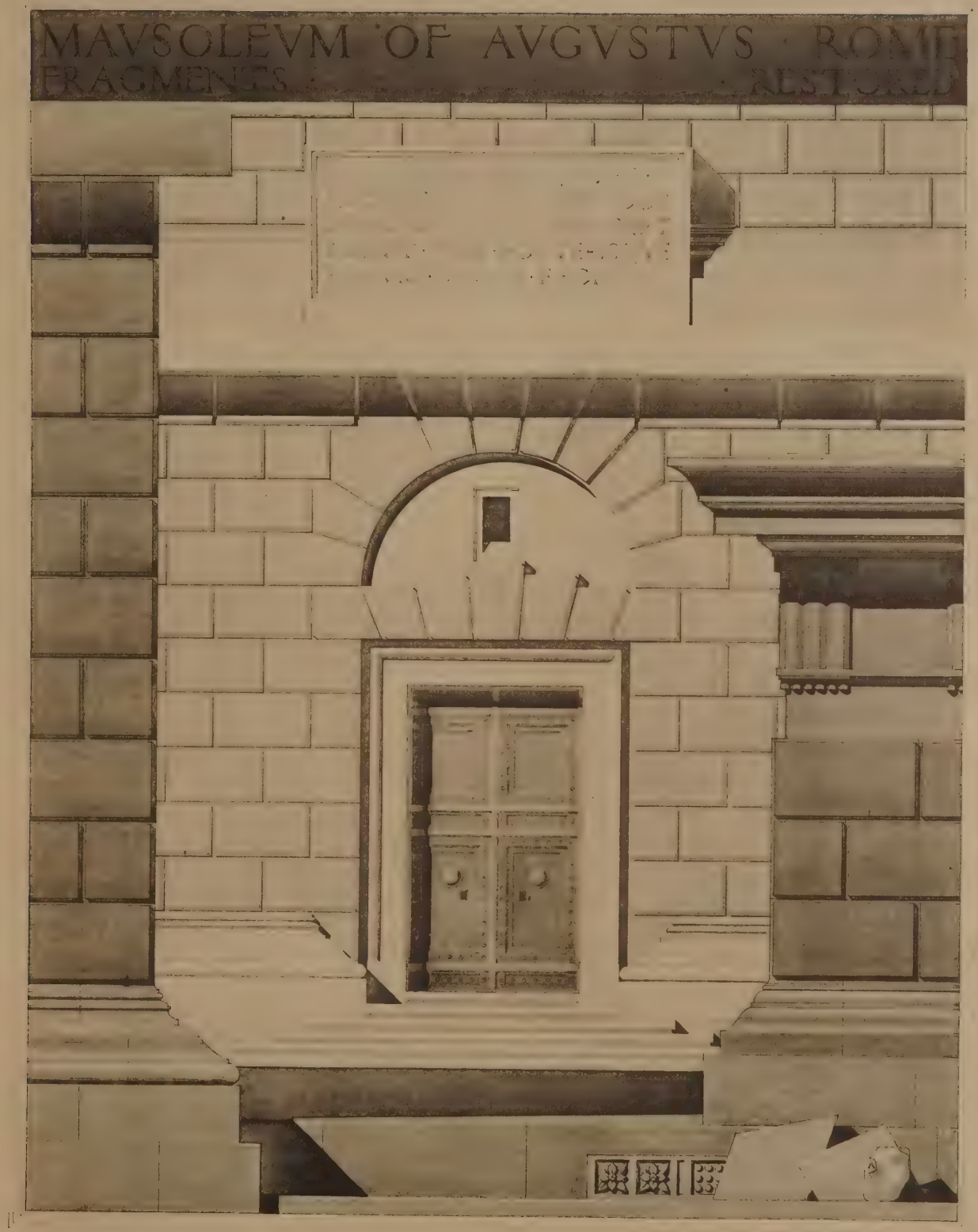
MAUSOLEUM OF AUGUSTUS

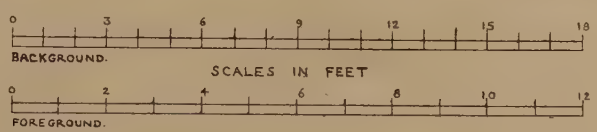
SOUTH ELEVATION, RESTORED



MAUSOLEUM OF AUGUSTUS

SECTION NORTH TO SOUTH, RESTORED





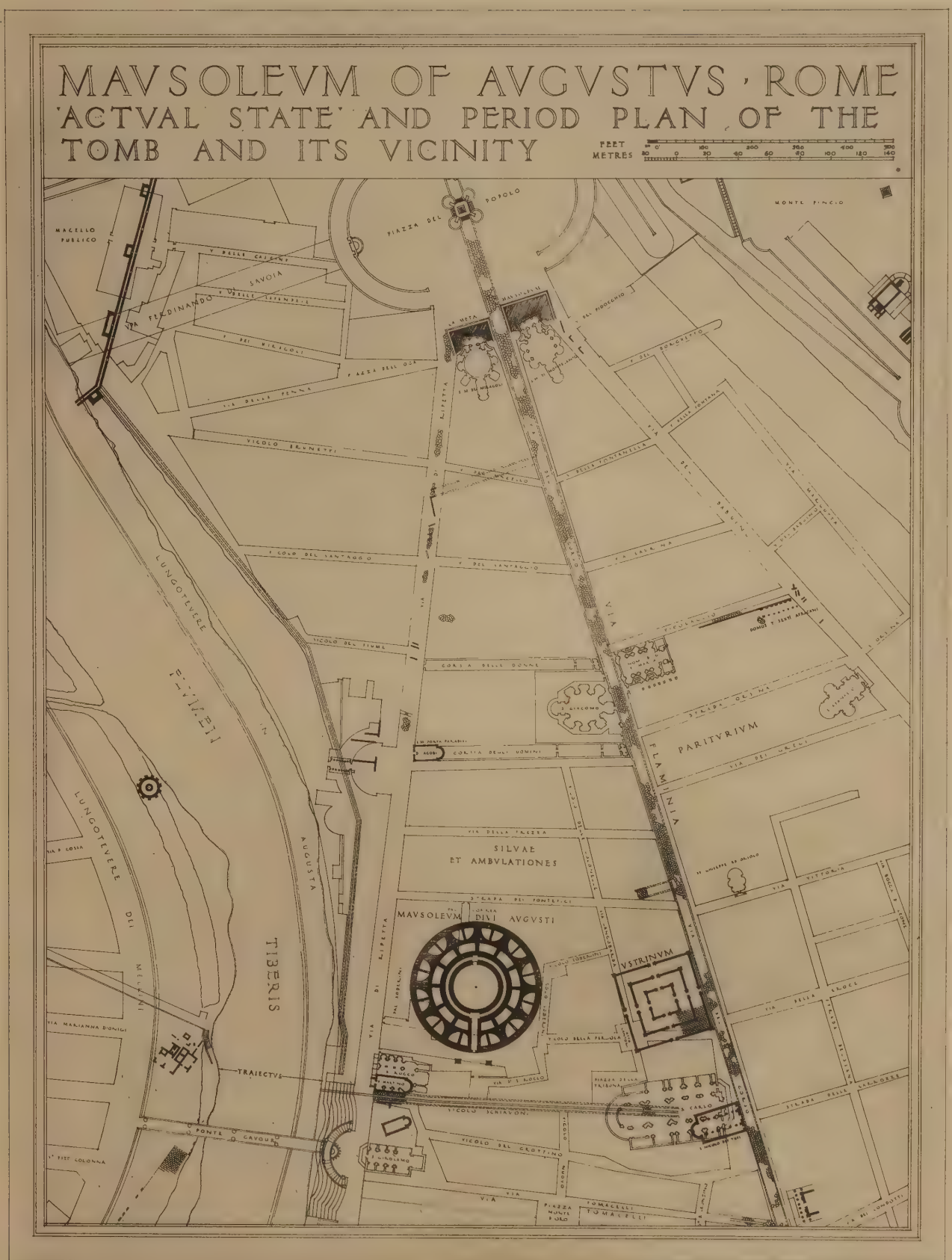
MAUSOLEUM OF AUGUSTUS

FRAGMENTS IN FOREGROUND FROM PERUZZI'S DRAWINGS: DOORWAY AND INSCRIPTION CONJECTURAL

MAUSOLEUM OF AUGUSTUS

PLANS AT THE THREE UPPER LEVELS, RESTORED

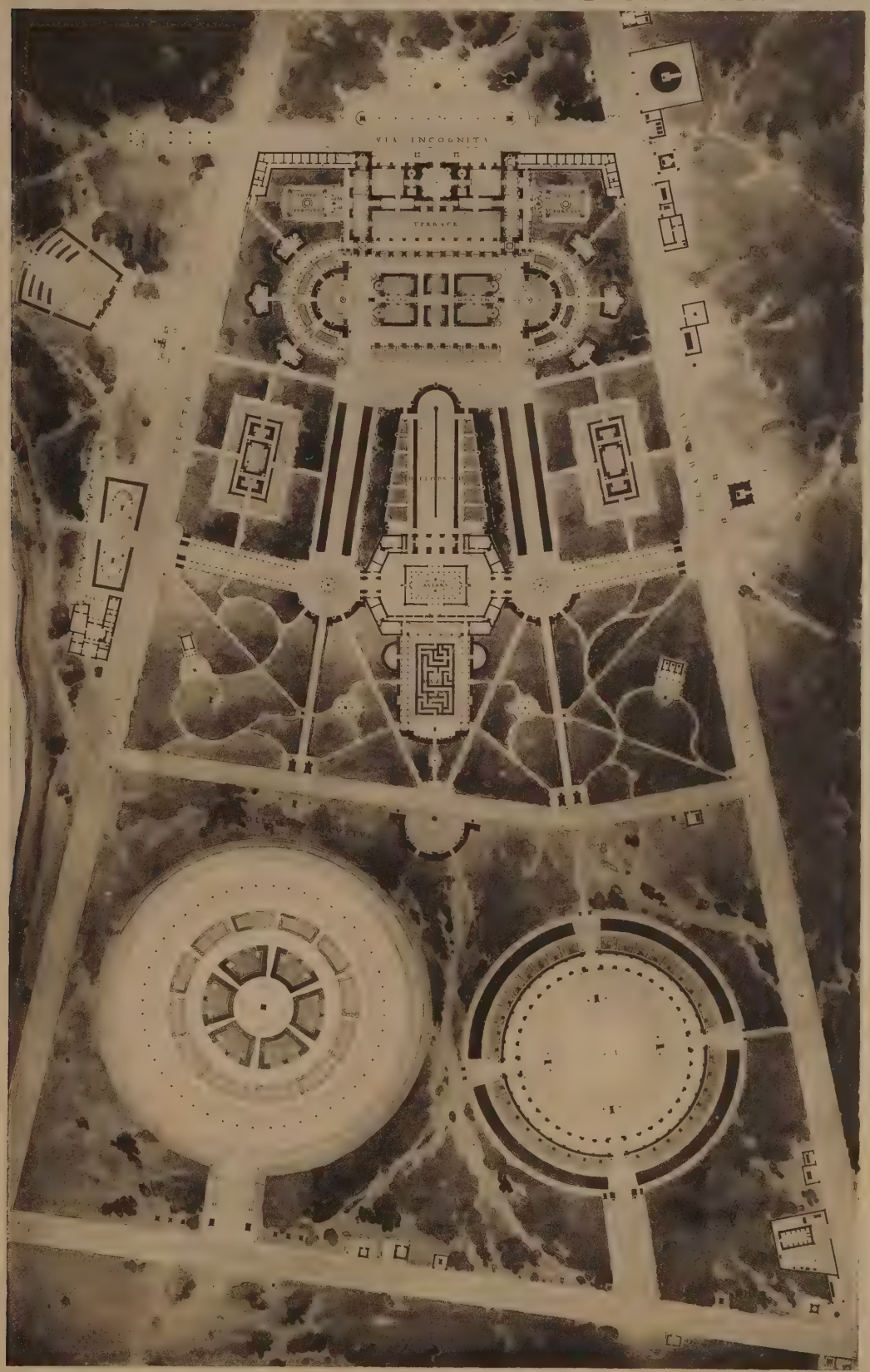
MAUSOLEUM OF AUGUSTUS
PLAN THROUGH LOWER CHAMBER, RESTORED



MAUSOLEUM OF AUGUSTUS

THE TOMB AND ITS SURROUNDINGS, BASED ON LANCIANI'S *FORMA URBIS ROMAE* (*ustrinum* WRONGLY SHOWN SQUARE)

MAVSOLEVM OF AVGVSTVS · ROME
RESTORATION OF THE TOMB AND ITS VICINITY·



MAUSOLEUM OF AUGUSTUS
THE TOMB AND ITS SURROUNDINGS: A CONJECTURAL DESIGN